

Fisheries Management Plan for Black Hills Streams

2015 – 2019



**South Dakota Game, Fish and Parks
Wildlife Division**

**Gene Galinat
Bill Miller
Michelle Bucholz
Dylan Jones**

**Greg Simpson
Jake Davis
John Carreiro
Stan Michals**

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I. Introduction

The purpose of this plan is to guide fisheries management activities of the South Dakota Game, Fish and Parks Department (SDGFP) in the Black Hills Fish Management Area (BHFMA) streams over the next five years. This plan is directly related to the Statewide Fisheries (SDGFP 2014a) and BHFMA (SDGFP 2014b) Strategic Plans. However, while those previously mentioned plans deal with issues at a statewide and BHFMA level, respectively, this management plan focuses on issues, identified by staff, anglers, and other stakeholders, specific to BHFMA streams.

Section II of this plan contains a description of the area and section III provides an overview of Black Hills stream management practices and activities. Section IV contains a list of issues identified by staff during work activities and through contacts with angler groups and other stakeholders. Section V contains a goal statement, objectives and strategies identified to address specific issues. The final section is an operational approach that will direct specific work details such as stocking and sampling.

This plan draws from previous Black Hills fisheries management plans and surveys. The first management plan on the Black Hills fisheries was completed in 1965 (SDGFP unpublished). The 1965 plan focused on cold water fish management and addressed both streams and reservoirs in the Black Hills area using *The Stream and Lake Inventory and Classification in the Black Hills of South Dakota* (Stewart and Thilenius 1964). In this document, streams were classified by habitat (i.e. temperature, periods of no flow and pollution) and Spearfish Creek was used as the reference stream when classifying all others. An update to this plan was completed in 1984. The 1984 plan was a list of policies explaining how different types of waters (streams and reservoirs) will be managed but did not give specific objectives or actions on how these policies would be carried out for individual waters. Another Black Hills stream management plan was completed in 1993 (Erickson et al. 1993). This plan utilized previous plans and the *Black Hills Stream Inventory and Classification 1984 and 1985* (Ford 1988) and combined them into a strategic and operational plan with specific objectives and actions (approaches) for streams using a new classification system. The classifications were changed drastically from the 1964 plan, in that, waters were classified by natural trout populations found during sampling efforts in 1984 and 1985.

In 1993, SDGFP entered a new form of resource management with the development of the Systematic Approach to Management (SAM; SDGFP 1994). During inception of the SAM process, SDGFP developed the following mission statement: "The Wildlife Division will manage South Dakota's wildlife and fisheries resources and their associated habitats for their sustained and equitable use and for the benefit, welfare, and enjoyment of the citizens of this state and its visitors". The SAM plan was for internal use and intended to provide general and strategic guidance through 1995 and 1996. This plan addressed resource management, such as stream and river management, on a statewide basis. While some objectives and strategies covered in the plan may have been achieved, the strategic plan was never fully operationalized.

This document is intended to be a dynamic tool that guides fisheries resource management, but does not limit management needed when immediate changes or

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opportunities that are consistent with the plans goals and objectives are identified. Additions and updates to the Stream Management Index (SMI) will be ongoing with a written update completed every five years to maintain this as an adaptive document for both managers and the public. Input from the public will continue to be a valuable part of this process.

II. Resource Descriptions

Black Hills Fish Management Area

The BHFMA includes all waters within the following boundary: beginning at the junction of the SD-WY state line and the Redwater River (inclusive) to US 85, then south on US 85 to I-90, then southeast on I-90 to US 16T (Campbell St.) in Rapid City, then south on US 16T (Campbell St.) to SD 79, then south on SD 79 to Maverick Junction near Hot Springs, then west on US 18 to Edgemont, then northwest along the Burlington Northern Railroad to the SD-WY state line, then north along the state line to the Redwater River (Figure 1).

For this management plan, streams and management designations are listed in the Stream Management Index by watershed. The area is separated into eighteen different subunits or watersheds that lie entirely or partially within its boundary (Figure 2). These subunits are designated using either 8, 10 or 12 digit hydrologic units codes (HUCs; Appendix 4) created by the United States Geological Survey (USGS).

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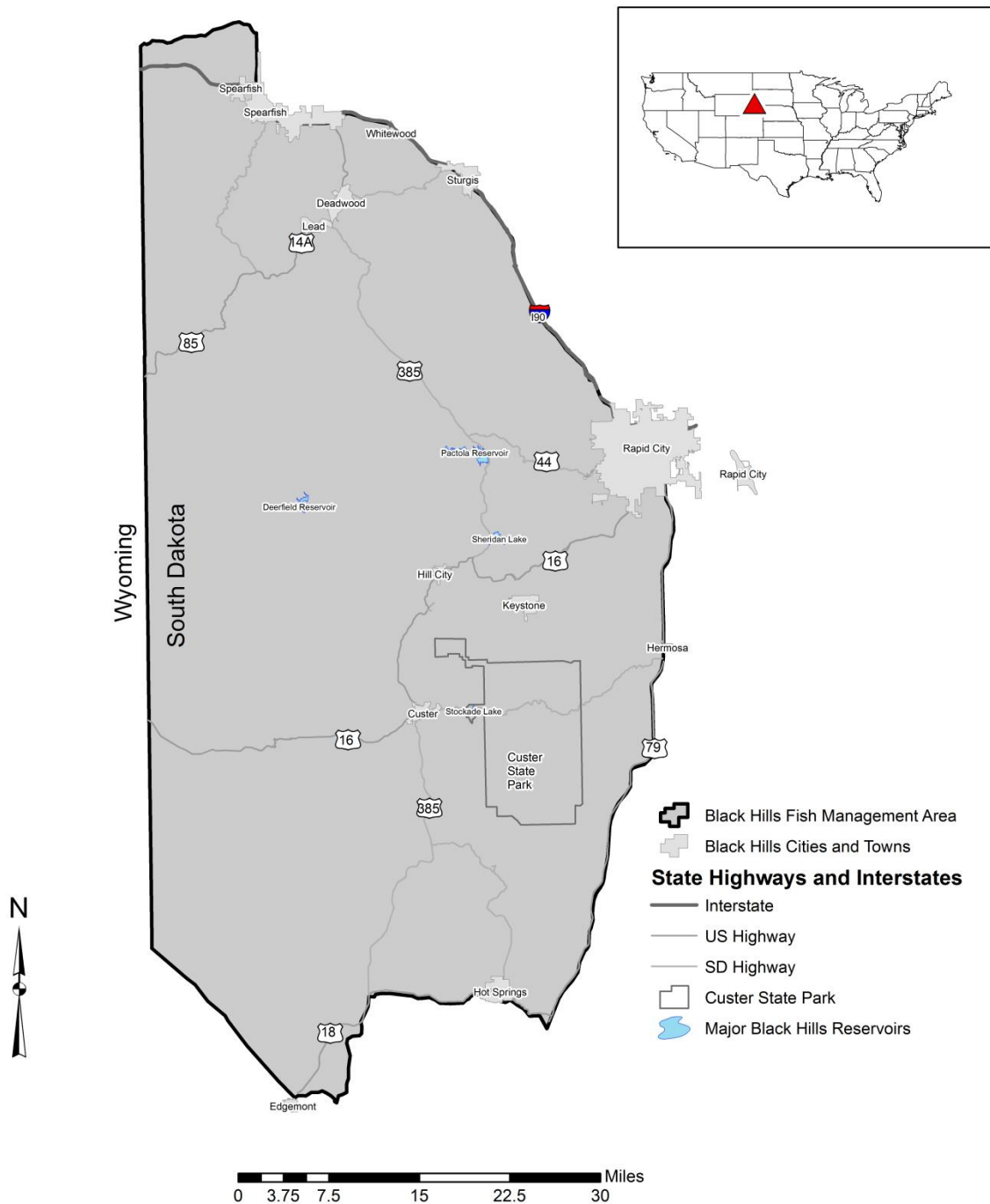


Figure 1. Black Hills Fish Management Area, South Dakota.

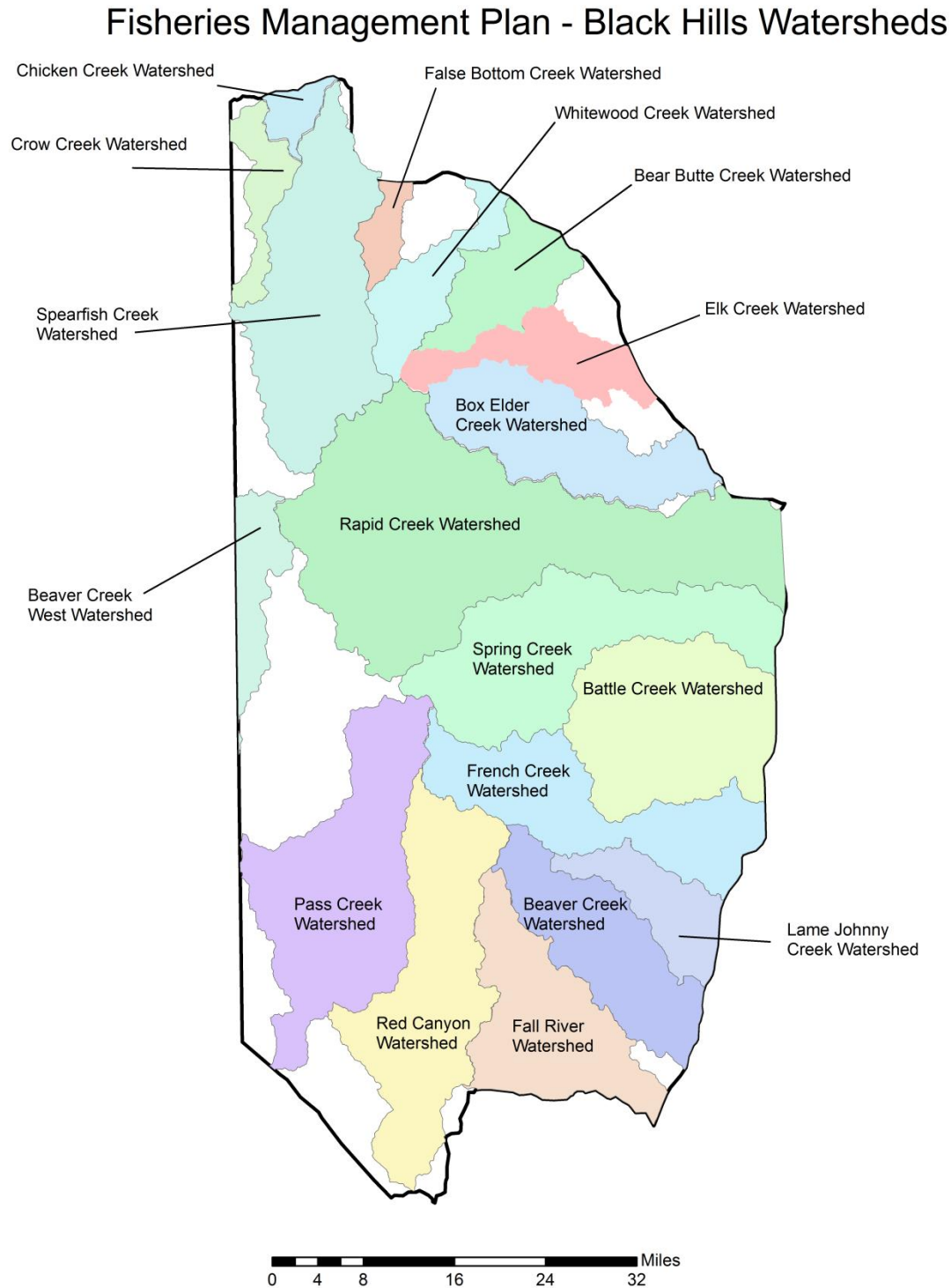


Figure 2. Watersheds within the Black Hills Fish Management Area, South Dakota. Unshaded areas may contain intermittent streams, but often lack viable fisheries.

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III. Management of Black Hills Fish Management Area Stream Fisheries

Classification of Trout Streams

Data from stream fish surveys conducted in summer and fall of 1984 and 1985 were used to develop criteria for classifying trout populations in BHFMA streams and, in some areas, reaches within streams. This classification system is still used today.

Two hundred and twenty stations were sampled on 65 streams during 1984 and 1985. Three stream reach classifications were created (Table 1) based on the existing natural (wild) trout populations and fish sizes deemed to be acceptable to anglers. Class 1 stream reaches support the highest number of adult wild trout. Class 2 stream reaches are intermediate in adult wild trout numbers and are occasionally supplemented with hatchery trout. Class 3 supports the lowest number of adult wild trout and often requires hatchery stockings to maintain fishable populations.

Streams were sampled in 100 meter sites and since an entire stream could not be sampled, locality and distance of stream reach classifications needed to be determined. This was accomplished by: 1) splitting the distance between sites with different classifications on a stream and 2) adding one kilometer of stream distance to the first and last stations sampled on a stream.

Table 1. Current classifications for Black Hills Fish Management Area streams, South Dakota.

Brown Trout Fisheries -- based on number of fish in excess of eight inches.	
Class BR1	number of wild brown trout exceeds 150 per acre
Class BR2	number of wild brown trout ranges from 25 to 150 per acre
Class BR3	number of wild brown trout is less than 25 per acre
Brook Trout Fisheries-- based on number of fish in excess of eight inches	
Class BK1	number of wild brook trout exceeds 150 per acre
Class BK2	number of wild brook trout ranges from 25 to 150 per acre
Class BK3	number of wild brook trout is less than 25 per acre
Rainbow Trout Fisheries -- based on number of fish in excess of eight inches	
Class RB1	number of wild rainbow trout exceeds 25 per acre
Class RB2	number of wild rainbow trout is less than or equal to 25 per acre

Regulations

Regulations on stream reaches over the past 30 years have been similar with the intent of most regulations being to limit harvest of trout in streams, or at least reduce harvest of larger trout. Creel regulations on streams throughout the area are currently limited to two trout regulations. The standard regulation is five trout (all species combined) daily. The daily limit may include no more than one trout greater than 14 inches in length. There are also three catch and release areas, Rapid Creek below Pactola Dam (including the stilling basin, approximately two miles in length), Rapid Creek in Rapid City from Park Drive to Jackson Boulevard (approximately one mile in length), and Spearfish Creek from

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Homestake Hydro Plant No. 2 downstream to the face of the Maurice Intake Dam (rainbow trout only, approximately one mile in length).

The use or possession of live baitfish is prohibited on all streams. Creek chubs, however, may be angled from streams within the BHFMA for use anywhere in the state where live baitfish are permitted. In the catch and release areas only artificial lures are allowed and the use and possession of organic baits are prohibited within 100 feet of the stream. A historical synopsis of special regulations can be found in Appendix 2.

Stocking

Stocking of hatchery-raised trout is an important tool for fisheries management and, from a historical context, all sport fisheries in the BHFMA are originally a product of stocking. Catchable size (11 inch) trout are stocked to maintain higher catch rates of quality length fish than are naturally found in some stream reaches and also used in some streams after extreme environmental conditions, such as in Spring Creek after the drought in the mid 2000's (Bucholz and Wilhite 2010).

Previous stocking directives for catchable trout can be traced back to the 1965 Black Hills Trout Management Policy (SDGFP unpublished). This policy specifically addressed trout stockings in accordance with the 1964 water body classifications; however, it did not take into account the wild trout populations already present. The change in stream classification in the mid 1980's was based on the wild trout populations present in the streams. Review of SDGFP stocking records show there were still large numbers of trout stocked into streams during the early 1990's despite the presence of wild populations. As a result of the 1993 management plan, a change in management strategies was applied that required fewer or no stockings in order to promote the natural product.

Black Hills streams are classified into two management categories: wild-trout, or hatchery-supplemented (Erickson et al. 1993). Streams that routinely meet Class 1 and Class 2 specifications are usually managed as wild-trout fisheries and are not normally supplemented with hatchery trout. However, exceptions may occur where low adult size structure is present (e.g. Castle Creek), following an environmental event (e.g. drought) that negatively impacts the fish populations (e.g. Whitewood Creek), or where increased harvest may occur (i.e. campgrounds). In general, supplemental stocking are only used on stream reaches where environmental variables reduce self-sustaining trout populations or where high angling pressure may lead to excessive harvest rates (Erickson et al. 1993).

Fish Surveys

Stream fish population surveys are conducted to evaluate growth, recruitment and mortality of fish populations. Fish sampling of streams first took place in the 1890's (Everman and Cox 1896) but did not occur again until the 1950's (Bailey and Allum 1962). Sampling became more regular in the 1970's when state fisheries staff was hired to inventory fish populations in the BHFMA. During 1984 and 1985, an extensive project to survey stream habitat and fish populations was conducted. Subsequent fish surveys occurred in the mid 1990's and in 2008-09. The latest stream fish surveys documented negative impacts of a recent drought when Black Hills streams experienced low water levels (Bucholz and Wilhite 2010).

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Within the BHFMA, perennial streams that support viable fisheries throughout a range of environmental conditions are considered to be primary streams (i.e. Rapid, Spearfish and Castle Creeks). Due to this, primary streams are often sampled on an annual basis. Fixed (historical) sites are normally used in the streams which generally hold Class 1 and Class 2 trout populations. Sampling of fixed sites allows for monitoring of trends over time by adding control over site characteristics such as local channel characteristics, which may influence fish abundance and sizes.

All streams within the BHFMA have not been assessed. The total number of streams and stream reaches that support wild trout populations or other fish populations is not fully known. Smaller streams, tending to have Class 3 designations or no classification, are generally sampled when information is needed. This has resulted in gaps in fish population data on these types of streams. Historical fixed sites along with new sites on smaller streams will be inventoried during implementation period for this management plan.

Angler Surveys

In general, in-person angler surveys on BHFMA streams are not conducted on a regular rotation, but rather when specific angler information is needed. Stream angler surveys are normally conducted during summer months and larger streams receive more effort than smaller stream surveys. These surveys are used to gather information such as angler satisfaction, angler types, and catch and harvest rates. In addition, more extensive surveys have been used to through alternative media (i.e. mail/internet) to gather specific information on stream anglers (Longmire *in prep.*)

A number of stream angler surveys have been completed recently such as: Crow Creek (Simpson et al. 2007); Rapid Creek, Spearfish Creek, Crow Creek and Grace Coolidge walk-in Area (Simpson 2007); Spearfish Creek (Simpson 2011).

Additional information collected using other human dimension tools will allow for communication between staff and users. Small group sessions made up of a cross-section of angler types have been used to gain feedback from area stream anglers. Comments from these types of collection methods can be found in Appendices 1 and 3, respectively.

Habitat and Angler Access

Over time, mining of the mineral rich region has been responsible for the existence of many local economies. Gold, silver, iron, uranium and pegmatite (to name a few) have historically been mined throughout different regions of the Black Hills for great economic benefit. Potential negative impacts of early mining from habitat alteration, sedimentation and metal toxicity have had variable long-term impacts on the area's aquatic systems. Direct impacts from wide spread placer mining, timber cutting for mines and miners, and roads had a dramatic impact the region's untouched aquatic systems. Other historic direct mining impacts resulted from toxic downstream releases of process solutions during operations. While signs of disturbance from these early mines and mills are hardly evident in some streams, in other areas impacts persist.

State regulations address all types of mining operations that use mechanized equipment or toxic chemicals. Extensive state regulations for mining and water quality overlay federal staking and mine permitting requirements on the national forest lands that make up much

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of the BHFMA. Because of the inherent impacts of mining on the land, state laws focus on reclamation or returning mine lands to a desirable end use.

The BHFMA has seen many environmental changes stemming from human activities since the late 1800's. Mining Road construction, land development and grazing have reshaped much of the Black Hills over time. The Whitewood Creek Superfund site is a good example. Millions of tons of toxic tailings from Homestake Gold Mine were deposited in the creek in Lawrence, Meade and Butte Counties. Cleanup up of the creek began in 1992 and the site was delisted as a superfund site in 1996. While mining related issues still exist in Whitewood Creek and its tributaries, the fish populations are thriving in portions of the creek and it serves as good example of recovery and rehabilitation efforts. Restoration efforts have taken place on Castle, Crow, Grace Coolidge, Rapid, Spearfish, Spring and Whitewood Creeks from 1976 to 1991. During that time, nearly 24 miles of stream were improved through the use of willow plantings, wood and rock structure placement, installation of overhead banks, and returning some streams to their original channel. A complete list of projects since 1991 is located below in Table 2.

Table 2. Stream habitat projects in the Black Hills showing location and associated cost.

Completion	Location	Total Cost	GFP Cost	Project Type
1991	Castle Creek	\$37,138	\$8,100	Instream cover
1992	SIP project, Rapid Creek, Griffith			Instream fish habitat
1993	French Creek in CSP	\$41,000	\$10,250	Instream fish cover, holding areas
1994	Castle Creek	\$55,950	\$26,651	Instream cover/stream meanders(1800')
1994	SIP project, Castle Creek, Barte			Instream fish habitat
1996	Deerfield valves	\$598,000	\$75,000	Winter flow enhancement(2 to 6-8 cfs) 6.5 above 16.5 below n. fork Castle
1995	SIP Project, Rapid Creek, McKie			Instream fish habitat
1996	French Creek in CSP	\$57,396	\$14,349	Instream fish habitat
1996	Galena Creek relocation	\$87,720		Stream channel relocation CSP
2002	Rapid Creek in Rapid City	\$220,000	\$0	Holding cover, fish passage, park dev.
1996	SIP project Spearfish Creek, Painter			Instream fish habitat
1996	SIP project, Rapid Creek, O'Brien			Instream fish habitat
2003	Castle and Rapid Creeks		\$5,000	Willow plantings (4000 plus 4000)
1997	Pactola Basin Rapid Creek	\$8,710		Holding cover
1997	Spearfish Creek, Lookout and City Pk	\$18,859	\$10,100	Bank work instream fish structure
1999	Pactola Basin check structure	\$114,279	\$25,000	Fish passage
1999	Spearfish Cr. Hydro #2 to Maurice	\$121,000	\$0	Instream fish habitat repair
1999	Spring Creek Hill City Park	\$30,034	\$358	Instream fish habitat and riparian zone
1999	Wasp Mine riparian restoration	\$18,139	\$9,069	Riparian zone renovation
2002	Spearfish geochemistry			Research SDSMT (thesis)
2001	Castle Creek riparian fence	\$15,587	\$10,587	Riparian zone protection
2002	Grace Coolidge Cr. Small dams	\$31,047	\$31,047	Structure repair/removal (6,3)
2001	Hearst Diversion removal	\$5,320	\$5,320	Fish passage, water right
2003	Grace Coolidge Cr. Small dams			Sediment removal
2003	Savoy US14A structure		\$35,000	Culvert, water right
2003	Whitewood Cr. access in Deadwood	\$86,737	\$86,737	Access
2007	Savoy intake rehab/rapids const.	\$425,000	\$425,000	Rehab old weir on Spearfish Creek/rapids etc.
2013	Pactola Basin	\$8,750	\$0	Transportation of trees to Pactola Basin for habitat project
2014	Gimlet Creek	\$86,000	\$10,000	Stream crossing improvements, sediment reduction
		\$1,980,666	\$777,568	

From 1991-2002, meanders and instream cover was added to 1,880 feet of Castle Creek. To improve wintertime flows, six valves were replaced on Deerfield Dam. Additionally, riparian exclosures were constructed along Castle Creek. Other improvements included: willow plantings on shorelines along Castle Creek and Rapid Creek, a new check structure fish passage system was installed below the basin, riparian zones and fish habitat were improved on Spring Creek in Hill City Park and holding cover and fish passages were improved in Rapid Creek. Habitat structures and stream enhancement projects require upkeep and repair and major flow events can impact the effectiveness and integrity of improvements. Some in-stream structures no longer function as in-stream fish habitat.

Fisheries Research

Fisheries research is designed to address management issues, such as declines in fish populations. These projects generally have management-focused objectives and are intended to generate new potential management strategies. Recent examples of research projects included the evaluation of brown trout populations in Rapid Creek (Erickson et al. 2005; James et al. 2007) and the movement patterns of a unique population of rainbow trout in Spearfish Creek (James 2011a).

In cases where the scope of a project involving game fish species requires additional assistance, partnerships with academic institutions, such as South Dakota State University, are undertaken. These projects are often funded through the federal Sport Fish Restoration program. Projects involving the status of native fish (Schultz 2011) and unique trout populations (Davis 2012) have provided managers with essential information.

Aquatic Invasive Species (AIS)

Aquatic invasive species are classified as any species not native to an area that threaten the diversity or abundance of native species or the ecological stability of infested waters, or commercial, agricultural, aquaculture, or recreational activities dependent on such waters (NANPCA 1990). Concern for AIS exists statewide and is addressed in more detail within the Statewide Fisheries Plan (SDGFP 2014a). Currently, AIS species didymo and red-rimmed melania, persist within streams of the BHFMA.

In 2002, didymo, a diatom that can produce nuisance growths, was discovered in Rapid Creek below Pactola Reservoir. Didymo has since regularly bloomed from the tailrace below Pactola Reservoir dam downstream to the city limits of Rapid City (~39 km). Occasional blooms are also observed in Rapid Creek above Pactola Reservoir and in a small, isolated section of Castle Creek. Although these blooms raised concerns with anglers and managers, and were blamed for the decline of the Rapid Creek brown trout fishery, research showed that didymo was likely not the source of the decline of trout populations (James 2011b).

Red-rimmed melania is a non-native snail common in the aquarium trade. Large deposits of these snails occur in Fall River within the city of Hot Springs where warm water from the geothermal resource of the Madison Group Aquifer provides favorable conditions.

In addition to these snails, Jack Dempsey cichlids, while not currently listed as AIS in South Dakota rule, have also established a strong reproducing population in this warm stream. This fish species, native to Mexico and Honduras, is also common in the aquarium trade.

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The affects these AIS species have on sportfish and native populations is not fully understood but the apparent prolific nature of these species certainly raises concern and will be monitored in the future.

Fish Health

Fish health is a major concern of fisheries managers. In addition to the possible introduction of salmonid pathogens from outside of South Dakota, several fish health concerns currently exist. Parasitic yellow grubs are present in French Creek in Custer County and have been documented since the early 1890's (Evermann and Cox 1896). These grubs can affect any freshwater fish, but are mostly reported in yellow perch (Miller and Galinat 2009). Additionally, secondary infections of parasitic water molds have been observed during the fall in Rapid Creek brown trout, likely due to the stressors involved with spawning.

IV. Issues

Information gained from a 2014 focus group of Black Hills stream anglers, public open house events, SDGFP staff, and the 2015 Black Hills Angler Survey (Longmire *in prep.*) was used to identify management issues. Not surprisingly, many of the issues identified for Black Hills streams were also identified and included in the BHFMA Strategic Plan.

1. Current angler demographics are unknown.
 - *Issue is similar to BHFMA Plan Issue 2*
2. Conflicting angler preferences require multiple management strategies.
 - *Issue is similar to BHFMA Plan Issue 3*
3. Readily available stream access information for anglers is over 15 years old and needs to be updated.
 - *Issue is similar to BHFMA Plan Issue 5*
4. Angler compliance with existing regulations in the BHFMA is unknown.
 - *Issue is similar to BHFMA Plan Issue 7*
5. Relationships with public and private landowners are lacking, preventing the implementation of Best Management Practices along many streams.
 - *Issue is similar to BHFMA Plan Issue 8*
6. Anglers may be confused by non-uniform bait regulations for different BHFMA streams.
 - *Issue is similar to BHFMA Plan Issue 10*
7. Native fish populations might be negatively affected through habitat loss and fish introductions.
 - *Issue is similar to BHFMA Plan Issues 11 and 12*
8. Stream flows are impacted by human activities, including urban development.
 - *Issue is similar to BHFMA Plan Issue 13*

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9. Management to produce maximum angler satisfaction may require complex and/or water-specific regulations.
 - *Issue is similar to BHFMA Plan Issue 14*
10. Hatchery rearing and genetic influences on post-stocking performance and angler satisfaction are not always considered when making trout stocking decisions.
 - *Issue is similar to BHFMA Plan Issue 16*
11. The long-term impacts of invasive or introduced species in streams are not well understood.
 - *Issue is similar to BHFMA Plan Issue 17*
12. Hatchery production of trout is limited, with hatcheries currently operating at capacity.
 - *Issue is similar to BHFMA Plan Issue 18*
13. The extended time frame for requesting changes in coldwater hatchery production requires long-term planning by fisheries managers.
 - *Issue is similar to BHFMA Plan Issue 19*
14. Sampling protocols and management strategies for non-game and native fish populations are lacking.
 - *Issue is similar to BHFMA Plan Issue 20*
15. Aquatic invertebrates and amphibians are not sampled using established protocols, if they are sampled at all.
 - *Issue is similar to BHFMA Plan Issue 21*
16. Trout stocking criteria are not well-defined.
 - *Issue is similar to BHFMA Plan Issue 22*
17. Long-term planning is required to implement habitat and access projects on federal lands.
 - *Issue is similar to BHFMA Plan Issue 24*
18. Population genetics information, including genetic health and source strains, is unknown for nearly all naturally-reproducing trout populations.
 - *Issue is similar to BHFMA Plan Issue 26*
19. Data important to stream management that is collected and stored by other state and federal resource agencies is not readily available.
 - *Issue is similar to BHFMA Plan Issue 27*
20. Factors affecting trout reproduction and recruitment are unknown for many streams.
 - *Issue is similar to BHFMA Plan Issue 28*
21. Current information on riparian zones is lacking.
 - *Issue is similar to BHFMA Plan Issue 29*
22. Evaluations, including cost-benefit analysis, of habitat restoration and access projects are typically not conducted.

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- *Issue is similar to BHFMA Plan Issue 31*
- 23. Sedimentation and increased water temperatures likely do to forestry practices, grazing, road construction, and mining may be negatively impacting habitat quality and fish populations.
 - *Issue is similar to BHFMA Plan Issue 32*
- 24. Overhead cover along streams may be impacted by grazing practices.
 - *Issue is similar to BHFMA Plan Issue 33*
- 25. Insufficient instream flows and elevated summer water temperatures may be limiting sport fish populations in some streams.
 - *Issue is similar to BHFMA Plan Issue 34*
- 26. Elevated summer water temperatures limit coldwater habitat in some waters.
 - *Issue is similar to BHFMA Plan Issue 35*
- 27. Over-winter survival of trout may be habitat limited in selected creeks.
 - *Issue is similar to BHFMA Plan Issue 36*
- 28. Sampling protocols to measure instream habitat have not been established.
 - *Issue is similar to BHFMA Plan Issue 37*
- 29. Streams sometimes don't meet their designated fish classification.
- 30. Unidentified Class 1, Class 2 or Class 3 trout populations may exist.
- 31. Effect of potential climate change on BHFMA streams is not fully understood.
- 32. Stream sampling site numbers do not always fall in numerical order and do not reflect location.
- 33. No objective measure of success exists for trophy or memorable trout management in BHFMA streams.
- 34. Disruption of stream connectivity by in-stream barriers may negatively affect movement of native and sport fish.

V. Goal, Objectives, Strategies

Goal: Manage stream fisheries (and other stream aquatic resources) in the BHFMA of South Dakota for long-term sustainable use and enjoyment.

Objectives and strategies are presented here to address general Black Hills stream management issues not already addressed in objectives contained in the BHFMA Strategic Plan. Completing these objectives and strategies will be the focus of SDGFP fisheries staff over the next five years.

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Objective 1: Annually, protect or enhance at least one half mile of coldwater stream habitat.

Strategy 1.1: Identify riparian areas and associated instream coldwater fish habitat that should be protected or enhanced.

Strategy 1.2: Determine land ownership and permitting requirements of identified locations.

Strategy 1.3: Identify stakeholders willing to implement best management practices or small-scale enhancement projects.

Strategy 1.4: Prioritize primary streams (Rapid, Castle, Spearfish) and project locations based on public access availability, angler input and SDGFP fish population and habitat survey data.

Strategy 1.5: Determine funding requirements and availability.

Strategy 1.6: Involve NGO's and other potentially affected individuals.

Strategy 1.7: Select location(s) based on available funds and complete project(s).

Strategy 1.8: Annually allocate funds in operating budgets for conducting habitat improvements and submit project proposals for larger projects for funding consideration.

Objective 2: By December 2019, classify all BHFMA stream reaches.

Strategy 2.1: Identify stream reaches that have not been classified (i.e. Class 1, 2 or 3).

Strategy 2.2: Conduct fish population surveys in unclassified reaches and in those reaches where the classification may have changed.

Strategy 2.3: Update the Stream Management Index.

VI. Operational Guide for Black Hills Stream Fish Management

Fish management in streams is largely focused on sportfish (i.e. trout species). Management actions address wild populations and whether hatchery fish are needed to maintain viably fishable trout populations. To help facilitate these actions, a classification system was created for stream reaches and, in some instances, entire streams. The classifications are based on the number of fish that anglers would consider a good size (8 inches for all trout species) to catch per acre of water. Descriptions of these classes are:

Class 1 designation: Provides anglers the opportunity to pursue trout in populations sustained by natural reproduction. Refers to waters with 150 or more adult (eight inches

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and longer) brown and brook trout per acre of water area and 25 or more eight inch and longer rainbow trout per acre.

Class 2 designation: Indicates areas where anglers have the opportunity to pursue naturally produced trout in less than optimal habitat, limited reproduction and/or low recruitment results in lower densities. Refers to waters with 25 to 150 adult (eight inches and longer) brown or brook trout and less than 25 rainbow trout (eight inches and longer) per acre of surface water area.

Class 3 designation: Indicates areas where natural reproduction and/or recruitment generally do not support fishable trout populations. This designation indicates areas where hatchery stockings are needed to improve angling success during times of adequate environmental conditions (i.e. temperature and flow). Refers to waters with less than 25 adult brown or brook trout (eight inches and greater) per acre of water area.

Management guidelines

The following guidelines are largely adopted from the *1993 Black Hills Stream Plan* and will be utilized to conduct stream reach fisheries management in the Black Hills.

1. The biological characteristics of the stream and public input shall determine the management type. Streams with adequate natural trout reproduction should be primarily managed for the species present.
2. Stream reaches will be designated for management through natural recruitment or as hatchery supported.
3. To remain designated as Class 1 on primary waters (i.e. Castle, Rapid and Spearfish), stream reaches must meet or exceed specifications on an average of two of three (66%) of the most recent consecutive sampling events.
4. Stream reaches meeting Class 2 and Class 3 definitions will be evaluated on what is limiting the trout populations from meeting a higher classification.
5. Memorable Trout Management Areas will be evaluated on the number of adult trout equal to or greater than 15 inches in length with a goal of at least 12 fish per acre.
6. Hatchery trout management (e.g. supplemental stocking) is not limited to, but is primarily utilized on streams or management reaches where: 1) environmental conditions preclude sustaining a fishable population of trout, 2) management objectives (e.g. Memorable Trout Option) are not being met, 3) angling demand is in excess of the natural productivity of trout in the stream reach. Supplemental stockings consist primarily of catchable size (11 inch) and 15 inch rainbow trout and fingerling and catchable size brown trout.
7. Regulations will be kept as simple and uniform across the BHFMA as possible, but special regulations will be considered to meet management objectives on selected stream reaches and will be denoted in the annual SDGFP Fishing Handbook and marked with on-site signage.

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8. Trout stockings will be restricted to areas where public access is allowed.
9. Trout are not stocked for fishing derbies or for other promotional programs.
10. Stream habitat projects will be directed towards upgrading the quality of the fish populations through improved fish habitat and water quality.
11. Two stocking meetings held annually. A November meeting to finalize the stocking schedule for the following year. A July meeting to address future requests for coldwater species and numbers in order to allow hatcheries one to two years to plan accordingly.

Stream Reach Management – Wild Fish (WF)

Purpose: Manage self-sustaining fish populations as a renewable natural resource.

Management Options for wild fish stream reaches: The options listed below show the ways a stream reach can be managed for naturally producing fish populations.

1. *Natural Yield (NY)*
Objective: to emphasize the wild trout fishing experience.
 - a. Uses standard harvest limits
 - b. No restrictions on terminal gear
2. *Memorable Trout (MT)*
Objective: to provide angling opportunity to catch wild trout in excess of 15 inches.
 - a. May use restricted harvest limits (e.g. catch and release)
 - b. May use restrictions on terminal gear (artificial lures only)
3. *Unique Trout (UT)*
Objective: to provide fishable populations of species uncommon to most Black Hills streams.
 - a. May use special harvest restrictions for the species of concern
4. *Improvement (I)*
Objective: to improve angling through regulations or stocking in lieu of intensive habitat work. Identify areas or fish populations that may need help recovering from severe environmental events or where catch rates do not meet angler expectations.
 - a. May use restricted harvest limits (in overharvest areas)
 - b. May use stocking of hatchery trout in wild fish management reaches to provide increased catch rates of adult trout
 - c. Consideration must be given to detrimental effects on wild fish populations prior to stocking.
5. *Native Fish (NF)*
Indicates areas favorable for native fish or streams that may not offer ideal conditions for maintaining fishable trout populations, stocking hatchery trout or where little to no recreational fishing pressure occurs.

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Stream Reach Management – Hatchery Supplemented (HS)

Hatchery Supplemented provides fish stocked on a put-grow-and-take, put-and-take, enhancement, or introductory basis.

Purpose: To maintain fish populations in stream reaches that do not have the physical or biological capacity to support naturally sustaining sport fish populations. Generally is accomplished in Class 3 stream reaches.

Management Options for Hatchery Supplemented stream reaches: The options listed below show the ways a stream reach can be managed for hatchery supplemented populations.

1. *Annual (A) or Seasonal (S)* – Stocking frequency
Objective (*Annual*): to assure fish are available for anglers through high demand periods.
Objective (*Seasonal*): to provide fishing opportunity in marginal areas (i.e. may experience periods of elevated temperatures, low flow or seasonal drought) at times when habitat conditions are adequate for trout.
2. *Species* (e.g. *RB* – rainbow trout, *BN* – brown trout, *BK* – brook trout)
Objective: to provide sportfish suitable for conditions of the stream and fish species that meet anglers needs. A specific species will be used to accomplish specific management goals, such as an increased likelihood of return to anglers or an increased potential for naturalization and reproduction.
3. *Memorable (M)*
Objective: provide a large trout component in areas that generally lack large fish but have high angling pressure and good public access.
 - a. Uses 15 inch rainbow trout.
4. *Unique (U)*
Objective: to provide fishable populations of species uncommon to Black Hills streams.
 - a. Uses stockings of fingerling and/or 11 inch fish of the management species of choice.

Stream Sampling

Sampling to assess stream fish populations utilizes backpack electrofishing to collect fish. Sampling is normally accomplished in summer to early fall to avoid biases associated with spawning or seasonal movements of fish (James 1999). Population assessment is done one of two ways: 1) a three pass depletion is conducted and fish per 100 meters and per acre are calculated; or 2) a one pass electrofishing episode is performed and the number of fish observed is recorded, confirming presence or absence of a population. All stream sample sites are 100 meters long. In addition to fish species and numbers, other collected information includes fish length and weight, and measurements of stream width, temperature, conductivity and pH.

When age and growth information is needed, a sub-sample of fish may be sacrificed to remove otoliths (inner ear bone) for ageing purposes. Ageing trout with scales, while allowing for survival of sampled fish, has proven to be less accurate and precise. Sampling

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scales from fish also elevates stress levels causing survival of fish with scales removed to often be less than 100%. Data acquired from ageing of otoliths will lead to better information on age and growth which is necessary to help determine recruitment, growth and mortality of a trout population. Sacrificing of a small number of trout for age and growth information will not have a biological impact on the population as a whole and will not be detectable in the catch rates of anglers.

Black Hills fisheries in small streams are not normally sampled except when specific questions need answered or during periodic inventories. Generally small streams are sampled using historical (fixed) sites with additional sites added using a random stratified type design. Small and intermittent streams should be included and identified in the Stream Management Index. Standard sampling units consist of 100 meter stream segments. Sample site identifiers (numbers) should reflect location on a stream. Segments start at the mouth of a stream and are located every 100 meters along the length of the stream. For example, a site referred to as 24 is located 2,400 meters from the mouth of a stream.

Fixed sampling sites are normally used on primary streams (e.g. Castle, Rapid and Spearfish). Random stratified sites may be added during intense surveys when more information is needed. Primary streams should be identified in the SMI. While historical site names don't often reflect location on a stream, sample site numbers (same as used on small streams) are to be added to future SMI lists.

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VII. Stream Management Index; TBD = to be determined, HS = hatchery supplemented, NF= native fish, WF = wild fish, NY = natural yield, I = improvement, NWT = no wild trout, A = annual, S = seasonal, M = memorable, MT = memorable trout, U = unique, UT = unique trout, BK 1,2,3 = brook trout classifications, BN 1,2,3 = brown trout classifications, RB 1,2 = rainbow trout classifications, P = primary stream.

Watershed	Stream or watercourse	Reach Number	Reach Description	Reach Length (miles)	Current Management Option	2014 Site	Trout Class in 2014	Sites	Date last sampled	Trout Class	Comments
Battle Creek	7 Draw			17.636	TBD						
Battle Creek	Battle Creek	2	0.5mi below SD79 to 0.5mi below Hayward	13.1	HS						Stocked at bridges, 2 miles west of Hermosa to Hayward.
		3	0.5mi below Hayward to headwaters	12.7	WF-NY			Battle Creek 1051	25-Jun-09	BK3	
						Battle Creek 963	BK3	Battle Creek 963	13-Jun-14	BK3	
								Battle Creek 09	09-Jul-09		
								Battle Creek 05	24-Jun-09	BN3	
								Battle Creek 1120	09-Jun-94	BK1, RB2	
								Battle Creek 936	26-Jun-09	BN3	
Battle Creek	Bear Gulch			6.342	WF-NY			Bear Gulch 01	19-May-09	BK2	
Battle Creek	Billover Creek			12.485	TBD			-			
Battle Creek	Bobcat Gulch			3.334	TBD			-			
Battle Creek	Buckeye Gulch			4.493	TBD			-			
Battle Creek	Deadman Creek			8.412	TBD			-			
Battle Creek	Foster Gulch		Entire stream	4.3	WF-NY			Foster Gulch 01	14-May-09		
Battle Creek	Galena Creek		Entire stream	7.7	WF-NY			Galena Creek 02	20-May-09		
								Galena Creek 01	20-May-09	BK3	
Battle Creek	Grace Coolidge Creek	1	Battle Creek to 1mi downstream of State Game Lodge	12.2	WF-NY			Grace Coolidge Creek 01	23-Jul-97	BK2, BN1, RB1	

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Watershed	Stream or watercourse	Reach Number	Reach Description	Reach Length (miles)	Current Management Option	2014 Site	Trout Class in 2014	Sites	Date last sampled	Trout Class	Comments
		2	1mi downstream of State Game Lodge to Center Lake. Grace Coolidge lowhead dams	5.3	WF-I; HS			Grace Coolidge Creek 02	19-May-09	BK2	Upper = WF/Improved; Lower = HS/RBT
		3	Center Lake to headwaters	6	WF-NY			Grace Coolidge Creek 03	20-May-09	BK3, RB1	
								Grace Coolidge Creek 04	30-Jun-04	BK3, RB3	
Battle Creek	Grace Coolidge Tributary		Entire stream	TBD	WF-NY			-			
Battle Creek	Greyhound Gulch			5.816	TBD			-			
Battle Creek	Grizzly Bear Creek		Entire stream	6.8	WF-NY			Grizzly Bear Creek 01	19-May-09	BK3	
Battle Creek	Horsely Gulch			1.166	TBD			-			
Battle Creek	Iron Creek (South)	1	Confluence with Battle Ck to US16A	4.7	WF-NY	Iron Creek (South) 1	BK3	Iron Creek (South) 1	29-May-14	BK3	
						Iron Creek (South) 4	BK2	Iron Creek (South) 4	29-May-14	BK2	
								Iron Creek (South) 03	28-Aug-98	BK3, BN3, RB3	
								Iron Creek (South) 04	18-May-09	BK3	
								Iron Creek (South) 09	19-May-09	BK3	
								Iron Creek (South) 10	18-May-09		
		2	US16A to headwaters	9.7	WF-I			Iron Creek (South) 05	21-Jul-94	BK2, RB3	
								Iron Creek (South) 06	25-Jul-94	BK3, RB1	
Battle Creek	Lafferty Gulch			1.044	TBD			-			
Battle Creek	Lead Draw			2.766	TBD			-			

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Watershed	Stream or watercourse	Reach Number	Reach Description	Reach Length (miles)	Current Management Option	2014 Site	Trout Class in 2014	Sites	Date last sampled	Trout Class	Comments
Battle Creek	Little Squaw Creek		Entire stream	10.5	WF-NY			Little Squaw Creek 01	19-May-09		
Battle Creek	Norbeck Draw			0.785	TBD			-			
Battle Creek	North Fork Bear Gulch			1.332	TBD			-			
Battle Creek	Pine Creek		Entire stream	3.6	WF-NY			Pine Creek 01	18-May-09		
								Pine Creek 02	14-May-09		
Battle Creek	Potato Gulch Creek			0.647	TBD			Potato Gulch Creek 01	01-Jul-08	BK2, BN3	
								Potato Gulch Creek 02	19-Jul-93	BK3	
Battle Creek	Reed Draw			3.201	TBD			-			
Battle Creek	Rocky Gulch			2.356	TBD			-			
Battle Creek	Sheep Draw			0.893	TBD			-			
Battle Creek	South Fork Bear Gulch			2.07	TBD			-			
Battle Creek	Spokane Creek			11.723	TBD			Spokane Creek 02	14-May-09		
Battle Creek	Tepee Gulch		TBD	6.2	WF-NY			Teepee Gulch 01	14-May-09		
Battle Creek	Toll Gate Creek			2.088	TBD			-			
Battle Creek	Walt Smith Canyon			8.448	TBD			-			
Battle Creek	Whiskey Gulch			1.894	TBD			-			
Bear Butte	Alkali Creek			2	TBD			-			
Bear Butte	Bear Butte							Bear Butte Creek 09	15-Sep-93	BK3, BN1	
						Bear Butte Creek 10	BK2	Bear Butte Creek 10	07-Sep-14	BK2	
								Bear Butte Creek 12	18-Oct-96	BN3	
								Bear Butte Creek 13	21-Oct-96	BN2	
								Bear Butte Creek 16	13-Jul-10	BK2	

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Watershed	Stream or watercourse	Reach Number	Reach Description	Reach Length (miles)	Current Management Option	2014 Site	Trout Class in 2014	Sites	Date last sampled	Trout Class	Comments
								Bear Butte Creek 17	13-Jul-10	BK2	
						Bear Butte Creek 18	BK2	Bear Butte Creek 18	09-Jul-14	BK2	
								Bear Butte Creek 723	14-Jul-93	NWT	
								Bear Butte Creek 810	12-Jul-10	BK2	
								Bear Butte Creek 813	07-Sep-04	BK2	
								Bear Butte Creek 814	10-Sep-97	BK2, RB2	
								Bear Butte Creek 833	12-Jul-10	BK1	
								Bear Butte Creek 834	11-Sep-07	BK2	
								Bear Butte Creek 841	12-Sep-07	BK2	
								Bear Butte Creek 842	14-Jul-97	BK3	
								Bear Butte Creek 844	12-Jul-10	BK2	
								Bear Butte Creek 848	12-Sep-07	BK1	
								Bear Butte Creek 887	13-Jul-10	BK3	
								Bear Butte Creek 904	13-Jul-10	BK2	
Bear Butte	Bear Butte Unnamed Tributary 1					BBT 02	BK3	Bear Butte Unnamed tributary 1/2	21-Aug-14	BK3	
Bear Butte	Bear Butte Unnamed Tributary 2					BT2 01	BK2	Bear Butte Unnamed Tributary 2/1	18-Aug-14	BK2	Private-below small dam. Always has water
Bear Butte	Boomer Gulch			1.497	TBD			Boomer Gulch 01	30-Jun-93		
								Boomer Gulch 02	12-Sep-07	BK3	
								Boomer Gulch 03	20-Sep-00	BK3	
Bear Butte	Boulder Creek			6.628	TBD			-			

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Watershed	Stream or watercourse	Reach Number	Reach Description	Reach Length (miles)	Current Management Option	2014 Site	Trout Class in 2014	Sites	Date last sampled	Trout Class	Comments
Bear Butte	Butcher Gulch			1.536	TBD			-			
Bear Butte	Deadman Gulch			7.479	TBD			-			
Bear Butte	Dolan Creek			TBD	TBD			-			
Bear Butte	East Two Bit Creek				WF-NY			Two Bit East Creek 01	13-Aug-08	BK1	private, gate, no access 2014
						Two Bit East Creek 02	BK3	Two Bit East Creek 02	21-Aug-14	BK3	
Bear Butte	Lost Gulch			4.758	TBD			-			
Bear Butte	Park Creek			5.325	WF-NY	Park Creek 01		Park Creek 01	16-Jun-14		
								Park Creek 02	14-Jul-10		
Bear Butte	Peedee Gulch Creek			TBD	TBD			Peedee Gulch Creek 01	01-Aug-14		Not Sampled. 2" deep 8" wide
Bear Butte	Ruby Gulch			0.972	TBD			-			
Bear Butte	Spring Creek			3.25	TBD			-			
Bear Butte	Strawberry Creek		Entire stream	1.8	WF-NY			Strawberry Creek 01	17-Sep-98		
								Strawberry Creek 02	12-Jul-10	BK3	
								Strawberry Creek 03	13-Jul-10	BK2	
Bear Butte	Two Bit Creek				WF-NY	Two Bit Creek 02	BK3	Two Bit Creek 02	31-Jul-14	BK3	
					WF-NY	Two Bit Creek 06	BK3	Two Bit Creek 06	18-Aug-14	BK3	
								Two Bit Creek 01	12-Aug-08		
								Two Bit Creek 03	24-Sep-96	BK3	
								Two Bit Creek 04	24-Sep-96	BK3	
								Two Bit Creek 05	30-Sep-98		
Bear Butte	Vanocker Creek		TBD	3.8	TBD	VAN01		Vanocker Creek 01	14-Jul-93		

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Watershed	Stream or watercourse	Reach Number	Reach Description	Reach Length (miles)	Current Management Option	2014 Site	Trout Class in 2014	Sites	Date last sampled	Trout Class	Comments
Beaver	Bear Creek				TBD			Bear Creek 01	2014		Two stock dams with wetlands between. No stream.
Beaver	Beaver Creek	1	SD-WY border to 1N, 1E, W line of Sec 6	2.5	WF-NY; HS-RBT	Beaver Creek (Penn. Co.) 01 26Jun14	BK1	Beaver Creek (Penn. Co.) 01 26Jun14	26-Jun-14	BK1	Stock in campground and evaluate
						Beaver Creek (Penn. Co.) 01 7Jul14	BK2	Beaver Creek (Penn. Co.) 01 7Jul14	07-Jul-14	BK2	
		2	2mi above SD-WY line to headwaters		WF-I	Beaver Creek (Penn. Co.) 04	BK2	Beaver Creek (Penn. Co.) 04	08-Jul-14	BK2	
Beaver	Beaver Creek				TBD						
Beaver	Coon Creek				TBD			-			
Beaver	Dugout Creek				TBD			-			
Beaver	East Pass Creek				TBD			East Pass Creek 01	12-Aug-94		
								East Pass Creek 02	26-May-09		
Beaver	Line Creek				TBD			-			
Beaver	Little Bear Run					no flow		-			
Beaver	Lone Tree Creek				TBD			-			
Beaver	Pass Creek				TBD			Pass Creek 01	13-Apr-09		
Beaver	Short Fork				TBD			-			
Beaver	Thompson Canyon				WF-NY	Thompson Canyon Creek 01		Thompson Canyon Creek 01	02-Jul-14		
						Thompson Canyon Creek 02		Thompson Canyon Creek 02	02-Jul-14		
Beaver	West Pass Creek				TBD			West Pass Creek 01	26-May-09		

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Watershed	Stream or watercourse	Reach Number	Reach Description	Reach Length (miles)	Current Management Option	2014 Site	Trout Class in 2014	Sites	Date last sampled	Trout Class	Comments
Beaver	Wet Parmalee							Wet Parmalee 01	2014		Perennial for small distance. Access is difficult.
Beaver	Whoopup Creek				TBD			-			
Beaver Creek	Bear Gulch??		Entire stream	2.4	WF-NY						
Beaver Creek	Beaver Creek	1	Confluence of Cheyenne R to ¼mi below SD79	TBD	WF-NY			Beaver Creek 04	16-Jun-09		
		2	¼mi below SD79 to 6S, 7E, W line Sec 4		WF-NY			Beaver Creek 06	16-Jun-09	NWT	
		3	6W, 6E W line of Sec 4 to headwaters		WF-NY						
Beaver Creek	Bowman Draw			3.396	TBD			-			
Beaver Creek	Cold Spring Creek			7.198	TBD			Cold Spring Creek 01	16-Jun-09		
								Cold Spring Creek 02	06-Jun-97	NWT	
Beaver Creek	Curley Canyon			0.947	TBD			-			
Beaver Creek	Echo Valley			2.486	TBD			-			
Beaver Creek	Gobbler Canyon			7.704	TBD			-			
Beaver Creek	Haven Canyon			8.886	TBD			-			
Beaver Creek	Highland Creek		Entire stream	10.5	WF-NY			Highland Creek 01	10-Jun-09		BKT nursery
Beaver Creek	Martin Valley			5.522	TBD			-			
Beaver Creek	Negro Creek			0.854	TBD			-			
Beaver Creek	Prairie Dog Canyon			2.378	TBD			-			
Beaver Creek	Red Valley			5.081	TBD			-			
Beaver Creek	Well Pole Creek			1.908	TBD			-			
Beaver Creek	Wind Cave Canyon		TBD	7	TBD			Wind Cave Canyon 01	19-May-93		

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Watershed	Stream or watercourse	Reach Number	Reach Description	Reach Length (miles)	Current Management Option	2014 Site	Trout Class in 2014	Sites	Date last sampled	Trout Class	Comments
Boxelder	Blackhawk Creek			6.223	none	dry		-			Never water unless 10" of rain in a storm. Usually gone in a day.
Boxelder	Blue Draw			1.219	TBD			-			
Boxelder	Bogus Jim Creek		Entire stream	9	WF-NY	Bogus Jim Creek 01		Bogus Jim Creek 01	05-Jun-14		
						Bogus Jim Creek 02		Bogus Jim Creek 02	09-Jul-14		
Boxelder	Boxelder Creek	1	Bogus Jim Creek Confluence to Hwy 79					Boxelder Creek 05	20-Jul-99	BK3, BN2,	
								Boxelder Creek 06	29-Jul-99	BK3, BN3	
		2	Bogus Jim Creek to ½mi above Nemo	9.8	WF-I			Boxelder Creek 08	18-Jun-13	BK3, BN2, RB2	
								Boxelder Creek 02	13-Jul-93	BK2, BN1	
		3	½mi above Nemo to ½mi above confluence of N Fork	2	WF-I			Boxelder Creek 03	12-Jul-93	BK1, BN2	
					WF-NY	Boxelder Creek 01	BK3, BN3	Boxelder Creek 01	31-Jul-14	BK3, BN3	
					WF-NY	Boxelder Creek 04	BK, 2-BN,3	Boxelder Creek 04	07-Jul-14	BK2, BN3	
						Boxelder Creek 07	BK,2 - BN, 2	Boxelder Creek 07	01-Aug-14	BK2, BN2	
						Boxelder Creek 09	BK,3-BN,2	Boxelder Creek 09	31-Jul-14	BK3, BN2	
Boxelder	Corral Creek		Entire stream	5.4	WF-NY	Corral Creek 03	BK2	Corral Creek 03	23-Jul-14	BK2	
								Corral Creek 02	08-Jul-10	BK3	
								Corral Creek 01	13-Jul-94	BK1	
Boxelder	Deer Creek			TBD	TBD			-			
Boxelder	Erskine Gulch			3.145	TBD			-			
Boxelder	Estes Creek		Entire stream	5.5	WF-NY	Estes Creek 01	BK3	Estes Creek 01	10-Jun-14	BK3	Contains old FS K-dams

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Watershed	Stream or watercourse	Reach Number	Reach Description	Reach Length (miles)	Current Management Option	2014 Site	Trout Class in 2014	Sites	Date last sampled	Trout Class	Comments
Boxelder	Gingress Draw			1.131	TBD			-			
Boxelder	Green Draw			1.721	TBD			-			
Boxelder	Hay Creek			6.247	WF-NY	Hay Creek 03	BK2	Hay Creek 03	05-Jun-14	BK2	
Boxelder	Jenny Gulch			1.138	TBD			-			
Boxelder	Jim Creek		Entire stream	10.2	WF-NY	Jim Creek 01	BK3	Jim Creek 01	10-Jun-14	BK3	
						Jim Creek 02	BK3,BN3	Jim Creek 02	10-Jun-14	BK3, BN3	
Boxelder	Middle Bogus Jim Creek			6.766	TBD			-			
Boxelder	Middle Boxelder Creek		Entire stream	8.9	WF-NY	Middle Boxelder Creek 02	BK3	Middle Boxelder Creek 02	11-Jun-14	BK3	
						Middle Boxelder Creek 03	BK2	Middle Boxelder Creek 03	11-Aug-14	BK2	
Boxelder	North Bogus Jim Creek			1.957	TBD			-			
Boxelder	North Boxelder Creek		Entire stream	7.8	WF-NY	North Boxelder Creek 01	BK3	North Boxelder Creek 01	11-Jun-14	BK3	
								North Boxelder Creek 02	27-May-93	BK2	
								North Boxelder Creek 03	30-Jul-08	BK3	
						North Boxelder Creek 04	BK2	North Boxelder Creek 04	09-Jul-14	BK2	
Boxelder	North Fork Estes Creek			1.01	TBD			North Estes Creek 01	24-May-94		
Boxelder	Richard Draw			0.996	TBD			-			
Boxelder	South Bogus Jim Creek			2.553	TBD			-			
Boxelder	South Boxelder Creek		Entire stream	8.4	WF-NY			South Boxelder Creek 01	13-May-93	BK2, BN3	

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Watershed	Stream or watercourse	Reach Number	Reach Description	Reach Length (miles)	Current Management Option	2014 Site	Trout Class in 2014	Sites	Date last sampled	Trout Class	Comments
								South Boxelder Creek 02	09-Jun-10	BK3	
						South Boxelder Creek 03	BK2	South Boxelder Creek 03	04-Aug-14	BK2	
Boxelder	Wards Canyon			2.025	TBD			-			
Boxelder	West Fork Estes Creek			2.972	TBD			-			
Boxelder	Wilson Draw			4.271	TBD			-			
Chicken Creek	Chicken Creek		Entire stream	4.716	TBD			Chicken Creek 01	15-Jun-1995	NWT	No fish sampled
Crow Creek	Crow Creek		Entire stream	10.419	TBD			Crow Creek 01	28-Jul-2008	BR2 RB1	longnose sucker present
								Crow Creek 02	29-Jul-2008	BK3	
								Crow Creek 03			
								Crow Creek 04	26-Jun-2000	BR1	longnose sucker present
								Crow Creek 05	28-Jul-2008	BR2 RB1	mountain sucker present
								Crow Creek 06	30-Oct-2000	BR1	longnose sucker present
								Crow Creek 07			
								Crow Creek 08	30-Oct-2000	BR1 RB2	longnose sucker present
Elk Creek	Chimney Canyon			1.883	TBD			-			
Elk Creek	Dry Elk Gulch			2.681	TBD			-			
Elk Creek	Elk Creek	1		27.951	WF-NY						
		2	2mi below Haines Ave Bridge to ½mi E of I-90	3	WF-I						
		3	½mi E of I-90 to FS151	TBD	WF-NY	Elk Creek 02	BK2	Elk Creek 02	14-Jul-14	BK2	Intermittent

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Watershed	Stream or watercourse	Reach Number	Reach Description	Reach Length (miles)	Current Management Option	2014 Site	Trout Class in 2014	Sites	Date last sampled	Trout Class	Comments
								Elk Creek 06	13-Jul-09	BK3	
		4 Sec1	FS151 to ½mi below Roubaix (town)	TBD	WF-NY	Elk Creek 04	BK3	Elk Creek 04	18-Jul-14	BK3	
		5	½mi below Roubaix (town) to headwaters	5.5	WF-NY			Elk Creek 03	01-Jul-08	BK3	
								Elk Creek 05	23-Aug-10	BK2	
Elk Creek	Hay Creek			0.747	TBD						
Elk Creek	Little Elk Creek		Entire stream	12.7	WF-NY	Little Elk Creek 01	BK2	Little Elk Creek 01	12-Aug-14	BK2	
						Little Elk Creek 02	BK2,R B2	Little Elk Creek 02	30-Jul-14	BK2, RB2	
								Little Elk Creek 03	06-Jun-95	BK2	
Elk Creek	Meadow Creek			3.614	WF-NY	Meadow Creek 01	BK3	Meadow Creek 01	06-Jun-14	BK3	
						Meadow Creek 02	BK3	Meadow Creek 02	06-Jun-14	BK3	
Elk Creek	Virkula Gulch			1.136	none	dry		Virkula 01	dry 8/2014		
Elk Creek	Waite Gulch			1.424	TBD			-			
Fall River	Antelope Canyon			2.575	TBD			-			
Fall River	Argyle Canyon			6.957	TBD			-			
Fall River	Booms Canyon			3.551	TBD			-			
Fall River	Carroll Creek			9.819	TBD			-			
Fall River	Cascade Creek		Entire stream	3	HS-A			Cascade Creek 01			
								Cascade Creek 02	21-Jun-2010		
Fall River	Cold Brook Canyon			34.11	TBD			Cold Brook Canyon 01	17-Jun-09		
Fall River	Cottonwood Springs Creek			10.371	TBD			-			
Fall River	Dudley Canyon			4.054	TBD			-			
Fall River	Elm Creek		Entire stream	TBD	TBD				10-May-1993	NWT	No fish captured
Fall River	Fall River		Cheyenne River to Hot Springs city limit	5.4	WF-NY			Fall River 01	25-Aug-98	NWT	

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Watershed	Stream or watercourse	Reach Number	Reach Description	Reach Length (miles)	Current Management Option	2014 Site	Trout Class in 2014	Sites	Date last sampled	Trout Class	Comments
								Fall River 02	22-Jun-93	NWT	
								Fall River 03	25-Aug-98	NWT	
Fall River	Hotbrook Canyon		Entire stream	15.787	WF-NY			Hotbrook Canyon 02	27-May-09		
								Hotbrook Canyon 01	27-May-09		Warm water
Fall River	Shirttail Canyon			5.225	TBD			-			
Fall River	Wildcat Canyon			6.744	TBD						
False Bottom	False Bottom Creek	2	1mi upstream from I-90 to headwaters	9.3	WF-NY	False Bottom Creek 01	BK 3 - BN 3	False Bottom Creek 01	17-Jun-14	BK3, BN3	
								False Bottom Creek 02	27-Aug-98	BK3	
								False Bottom Creek 03	09-Jul-10	BK2, BN2	
						False Bottom Creek 04	BK3	False Bottom Creek 04	19-Aug-14	BK3	
False Bottom	Burno Gulch		Entire stream	5.2	WF-NY	Burno Gulch 01	BK2	Burno Gulch 01	16-Jun-14	BK2	
French Creek	Bobcat Canyon			1.092	TBD			-			
French Creek	Bugtown Gulch			0.76	TBD			-			
French Creek	Crow Creek			2.774	TBD			-			
French Creek	Dry Creek			33.264	TBD			-			
French Creek	East Fork Ruby Creek			2.453	TBD			-			
French Creek	French Creek	2	E boundary of CSP to Stockade Lake	21.7	HS			French Creek 03	15-Jun-09	NWT	Stocked at access points from old Glenn Erin School to bridge below CSP Horse Camp.
								French Creek 04	03-Jun-09	BN3	
								French Creek 07	22-Jun-09	BN3	
								French Creek 09	08-Jun-09	BN3	
		3	Stockade Lake to headwaters	33.3	WF-NY			French Creek 11	26-Jun-09		

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Watershed	Stream or watercourse	Reach Number	Reach Description	Reach Length (miles)	Current Management Option	2014 Site	Trout Class in 2014	Sites	Date last sampled	Trout Class	Comments
								French Creek 13	26-Jun-09		
French Creek	Glen Erin Creek			6.318	NF			Glen Erin Creek 01	22-Aug-06	NWT	
French Creek	Gordon Canyon			2.414	TBD			-			
French Creek	Laughing Water Creek			6.716	TBD			-			
French Creek	Meeker Creek E. Fork			TBD	TBD			Meeker Creek East 01	21-May-09	NWT	
French Creek	Meeker Creek W. Fork			TBD	TBD			Meeker Creek West 01	21-May-09	NWT	
French Creek	Middle Fork French Creek			2.953	TBD			-			
French Creek	North Fork French Creek			11.763	TBD			French Creek North 01	29-Jun-04	NWT	
								French Creek North 02	29-Jun-04		
French Creek	Ruby Creek			6.691	TBD			Ruby Creek 01	21-May-09	NWT	
French Creek	Sidney Creek			2.67	TBD			-			
French Creek	South Fork French Creek			3.45	TBD			French Creek South 01	02-Jun-09		
French Creek	Swint Creek			9.864	TBD			-			
French Creek	Toe Gulch			4.531	TBD			-			
French Creek	Willow Creek			6.276	TBD			-			
Lame Johnny	Blacktail Creek			8.029	TBD			-			
Lame Johnny	Dry Creek			18.585	TBD			-			
Lame Johnny	Flynn Creek			12.785	NF			Flynn Creek 01	26-May-09	NWT	
Lame Johnny	Lame Johnny Creek		Entire stream	33.152	WF-NY			-			
Lame Johnny	North Fork Lame Johnny Creek			8.222	TBD			Lame Johnny North 01	05-May-09		
Lame Johnny	South Fork Lame Johnny			9.94	TBD			Lame Johnny South 01	26-May-09		

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Watershed	Stream or watercourse	Reach Number	Reach Description	Reach Length (miles)	Current Management Option	2014 Site	Trout Class in 2014	Sites	Date last sampled	Trout Class	Comments
	Creek										
Pass Creek	Beaver Creek			7.726	TBD						
Pass Creek	Coon Creek			7.961	TBD			-			
Pass Creek	Dugout Creek			6.083	TBD			-			
Pass Creek	East Fork Pass Creek			12.965	TBD			East Pass Creek 02	26-May-09		
Pass Creek	Hell Canyon			37.589	TBD			Hell Canyon 01	13-Apr-09		
Pass Creek	Lemming Draw			5.675	TBD			-			
Pass Creek	Lithograph Canyon			3.806	TBD			-			
Pass Creek	Lyman Draw			7.264	TBD			-			
Pass Creek	Pass Creek			20.083	TBD			Pass Creek 01	13-Apr-09		
								Pass Creek 02	12-Aug-94		
Pass Creek	Red Point Canyon			4.638	TBD			-			
Pass Creek	Schenk Canyon			15.628	TBD			-			
Pass Creek	Short Fork Hell Canyon			2.221	TBD			-			
Pass Creek	Sourdough Draw			7.079	TBD			-			
Pass Creek	Tepee Canyon			25.855	TBD			Tepee Canyon 01	13-Apr-09		
								Tepee Canyon 02	13-Apr-09		
Pass Creek	West Hell Canyon			14.331	TBD			-			
Pass Creek	West Pass Creek			7.821	TBD			West Pass Creek 01	26-May-09		
Pass Creek	West Tepee Canyon			2.572	TBD			-			
Pass Creek	Windmill Draw			0.742	TBD			-			
Rapid	Bittersweet Creek			4.51	TBD			Bittersweet Creek 01	28-May-08		
						Bittersweet Creek 02		Bittersweet Creek 02	02-Jul-08		dry in 2014

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Watershed	Stream or watercourse	Reach Number	Reach Description	Reach Length (miles)	Current Management Option	2014 Site	Trout Class in 2014	Sites	Date last sampled	Trout Class	Comments
Rapid	Brush Creek			2.651	WF-NY	Brush Creek 01		Brush Creek 01	28-May-14		
Rapid	Buskala Creek		Entire stream	4.7	NF-WF-NY			Buskala Creek 01	15-Jun-95	BK3	
								Buskala Creek 02	15-Jun-95		
						Buskala Creek 03	BK2	Buskala Creek 03	16-Jun-14	BK2	
						Buskala Creek 04	BK3, BN3	Buskala Creek 04	10-Jun-14	BK3, BN3	
Rapid	Castle Creek (P)	1	Confluence with Rapid Creek to ½mi above Castle Peak Campground	19.2	WF; HS RBT Annual			Castle Creek 05	12-Sep-02	BK3	Stocked from Mystic through campground at bridges and access points.
								Castle Creek 07	-		
								Castle Creek 11	07-Jul-09	BN2, RB2	
								Castle Creek 13	-		
								Castle Creek 18	18-Sep-06	BN2, RB2	
								Castle Creek 19	19-Sep-06	BK3, RB2	
								Castle Creek 48	07-Jul-09	BK3, BN2	
								Castle Creek 79	01-Jul-09	BN2, RB1	
								Castle Creek 82	01-Jul-09	BN2	
								Castle Creek 102	25-Jun-12	BN2, RB1	
								Castle Creek 111	07-Jul-09	BN3, RB2	
								Castle Creek 140	08-Jul-09	BN2	
								Castle Creek 153	08-Jul-09	BN3	
						Castle Creek 181	BN2	Castle Creek 181	02-Jul-14	BN2	
						Castle Creek 186	BN2, RB2	Castle Creek 186	03-Jul-14	BN2, RB2	
		2	½mi above Castle Peak Campground to	6.9	WF-NY			Castle Creek 204	25-Jun-12	BN2, RB2	
								Castle Creek 212	21-Jun-94	BK3, BN2	

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Watershed	Stream or watercourse	Reach Number	Reach Description	Reach Length (miles)	Current Management Option	2014 Site	Trout Class in 2014	Sites	Date last sampled	Trout Class	Comments
			FS 188					Castle Creek 252	20-Jun-94	BK3, BN2	
								Castle Creek 253	20-Jun-94	BK3, BN1	
								Castle Creek 277	15-Jul-09	BK3, BN2	
								Castle Creek 287	15-Jul-09	BK3, BN2	
								Castle Creek 312	12-Jun-12	BK2, BN1	
						Castle Creek 309	BK2, BN1	Castle Creek 309	30-May-14	BK2, BN1	
						Castle Creek 324	BK1, BN2	Castle Creek 324	23-May-14	BK1, BN2	
						Castle Creek 2014	BK3, BN2	Castle Creek 2014	25-Jun-14	BK3, BN2	
		3	FS 188 to Deerfield Dam	2	WF-NY			Castle Creek 330	23-Sep-08	BK2, BN2	
								Castle Creek 332	29-Jun-09	BK2, BN3	
								Castle Creek 343	18-Jun-09	BK2, BN2	
								Castle Creek 353	26-Sep-00	BK1, BN1	
								Castle Creek 357	21-Sep-99	BK1, BN3	
								Castle Creek 363	20-Sep-06	BK1, BN1	
						Castle Creek 334	BK2, BN1	Castle Creek 334	27-May-14	BK2, BN1	
						Castle Creek 337	BK2, BN2	Castle Creek 337	27-May-14	BK2, BN2	
						Castle Creek 356	BK1, BN1	Castle Creek 356	20-May-14	BK1, BN1	
						Castle Creek 362	BK1, BN1	Castle Creek 362	19-May-14	BK1, BN1	
		4	Deerfield Resv to Soholt Draw	5.7	WF NY/HS-RBT Annual			Castle Creek 414	-		
								Castle Creek 417	-		
								Castle Creek 428	21-Aug-09	BK3, RB2	

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Watershed	Stream or watercourse	Reach Number	Reach Description	Reach Length (miles)	Current Management Option	2014 Site	Trout Class in 2014	Sites	Date last sampled	Trout Class	Comments
		5	Soholt Draw to headwaters	7.3	WF-NY			Castle Creek 463	26-Aug-09	BK3, RB1	
								Castle Creek 467	26-Aug-09	BK3, RB2	
						Castle Creek 450	BK2,R B2	Castle Creek 450	01-Jul-14	BK2,R B2	
						Castle Creek 426	BK2,R B1	Castle Creek 426	19-Jun-14	BK2,R B1	
								Castle Creek 508	09-Jun-93	BK2	
								Castle Creek 556	09-Jun-93	BK2	
Rapid	Cement Plant Creek			TBD	TBD			Cement Plant Creek 01	08-Aug-00	BNT1, RB2	
								Cement Plant Creek 02	15-Aug-07	BN3	
Rapid	Crooked Creek			4.124	TBD			-			
Rapid	Cousin Jack Creek				WF-NY			Cousin Jack Creek 01	11-Aug-08		
								Cousin Jack Creek 01	11-Aug-93		
						Cousin Jack Creek 03	BK3	Cousin Jack Creek 03	30-Jul-14	BK3	
Rapid	Deer Creek		Entire stream	9.073	WF-NY			Deer Creek 01	08-Jul-08		
						Deer Creek 02		Deer Creek 02	03-Jul-14		
						Deer Creek 03	BK3	Deer Creek 03	28-Aug-14	BK3	
Rapid	Ditch Creek		Entire stream	3.1	WF-I	Ditch Creek 01	BK3	Ditch Creek 01	30-Jun-14	BK3	
						Ditch Creek 03	BK2	Ditch Creek 03	30-Jun-14	BK2	
Rapid	Dry Creek			4.001	TBD						
Rapid	Dutchman Creek			4.197	TBD						
Rapid	East Gimlet Creek			5.21	WF-NY			East Gimlet Creek 01	16-Jun-08		
						East Gimlet Creek 02	BK3	East Gimlet Creek 02	23-Jun-14	BK3	

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Watershed	Stream or watercourse	Reach Number	Reach Description	Reach Length (miles)	Current Management Option	2014 Site	Trout Class in 2014	Sites	Date last sampled	Trout Class	Comments
						East Gimlet Creek 03	BK3,B N3	East Gimlet Creek 03	06-Jun-14	BK3,B N3	
Rapid	Gimlet Creek		Entire stream	4.5	WF-NY	Gimlet Creek 01	BK3	Gimlet Creek 01	05-Jun-14	BK3	
								Gimlet Creek 02	01-Aug-06		
						Gimlet Creek 25	BK3,B N2	Gimlet Creek 25	05-Jun-14	BK3,B N2	
Rapid	Gold Run (Castle Creek Trib.)			5.207	WF-NY	Gold Run Gulch 01	BK2,R B1	Gold Run Gulch 01	17-Jun-14	BK2,R B1	
						Gold Run Gulch 02	BK2	Gold Run Gulch 02	26-Jun-14	BK2	
Rapid	Heely Creek		Entire stream	4.4	WF-NY			Heely Creek 01	30-May-08		
						Heely Creek 05	BK3	Heely Creek 05	24-Jun-14	BK3	
Rapid	Hop Creek			3.315	WF-NY	Hop Creek 01		Hop Creek 01	30-Jul-14		
								Hop Creek 02	11-Jul-94		
Rapid	Horsethief Creek			0.8	TBD			-			
Rapid	Iowa Ditch			TBD	TBD			-			
Rapid	Lime Creek		Entire stream	8.4	WF-NY	Lime Creek 01	BN1	Lime Creek 01	04-Sep-14	BN1	
								Lime Creek 02	04-Jul-00	BN1	
								Lime Creek 03	30-Jun-11	BN3	
								Lime Creek 04	30-Jun-11	BN3	
						Lime Creek 05	BN2,R B2	Lime Creek 05	04-Sep-14	BN2,R B2	
Rapid	Nichols Creek		Entire stream	2.156	WF-NY	Nichols Creek 02	BK3, RB2	Nichols Creek 02	18-Jun-14	BK3, RB2	
						Nichols Creek 03		Nichols Creek 03	26-Jun-14		
Rapid	North Fork Castle Creek		Entire stream	7.3	WF-NY			North Castle Creek 01	22-Aug-10		

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Watershed	Stream or watercourse	Reach Number	Reach Description	Reach Length (miles)	Current Management Option	2014 Site	Trout Class in 2014	Sites	Date last sampled	Trout Class	Comments
								North Castle Creek 02	20-Jun-94	BK3, BN3	
								North Castle Creek 03	21-Jun-94	BK3	
								North Castle Creek 04	19-Aug-10	BK3	
Rapid	North Fork Rapid Creek		Entire stream	10.6	WF-NY	North Rapid Creek 01	BN2	North Rapid Creek 01	20-Jun-14	BN2	Bog iron seepage is heavy below Swilley Draw
						North Rapid Creek 02	BK2	North Rapid Creek 02	18-Jun-14	BK2	
						North Rapid Creek 04	BK2,B N2,RB 2	North Rapid Creek 04	18-Jun-14	BK2,B N2,RB 2	
								North Rapid Creek 03	21-Jul-10	BK2, BN3	
Rapid	Pole Creek			4.04	WF-NY	Pole Creek 01	BK3	Pole Creek 01	24-Jun-14	BK3	
						Pole Creek 02	BK3	Pole Creek 02	24-Jun-14	BK3	
Rapid	Prairie Creek		Entire stream	3.6	WF-NY	Prairie Creek 01	BK3	Prairie Creek 01	28-May-14	BK3	
						Prairie Creek 02	BN2	Prairie Creek 02	26-Aug-14	BN2	
Rapid	Rapid Creek (P)	2	Rapid City Sewage Plant effluent to Canyon Lake	12.2	WF-NY			Rapid Creek 1369	30-Jul-13	BN1	
								Rapid Creek 1431	30-Jul-13	BN1, RB2	
								Rapid Creek 1420	23-Jul-12	BN1	
								Rapid Creek 1379	24-Jul-12	BN1	
								Rapid Creek 2155	01-Aug-13	BK3, BN2	
								Rapid Creek 1407	29-Jul-13	BN1	
								Rapid Creek 1349	23-Jul-12	BN2	
		3	Canyon Lake to McGee Siding	9.6	HS-A			Rapid Creek 1456	29-Jul-13	BN1, RB1	Stocked at hatchery to Dark Canyon
								Rapid Creek 1606	26-Jul-12	BN1, RB2	

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Watershed	Stream or watercourse	Reach Number	Reach Description	Reach Length (miles)	Current Management Option	2014 Site	Trout Class in 2014	Sites	Date last sampled	Trout Class	Comments
								Rapid Creek 1593	26-Jul-12	BN2	
								Rapid Creek 1496	10-Jul-12	BN2	
								Rapid Creek 1470	12-Jul-12	BN1, RB1	
								Rapid Creek 1462	06-Jul-12	BN2, RB1	
		4	McGee Siding to ½mi above Johnson Siding	7.2	WF-NY			Rapid Creek 1642	04-Jun-13	BN2	
								Rapid Creek 1741	07-Aug-13	BN2, RB2	
		5	½mi above Johnson Siding to Old Bridge above Placerville	4.3	WF-NY			Rapid Creek 1801	04-Aug-13	BN2, RB2	
		5.5	Old bridge above Placerville to Pactola Res.	2.5	WF-M			Rapid Creek 1821	31-Jul-13	BK3, BN2, RB2	
								Rapid Creek 1832	06-Aug-13	BK3, BN2, RB2	
								Rapid Creek 1837	31-May-13	BN2, RB2	
								Rapid Creek 1842	03-Jul-12	BK3, BN2, RB2	
								Rapid Creek 1806	05-Jul-12	BN1, RB2	
		6	Pactola Res. To 1mi below FS231 Mystic Road	8	WT-NY-/HS-RBT- A, -M			Rapid Creek 1947	05-Aug-13	BK3, BN2, RB1	Stocked at bridges from parking lot above Silver City to USGS gauging station. Stocked with 11" and 15" RBT.
								Rapid Creek 1962	06-Aug-13	BN2, RB1	
								Rapid Creek 1956	28-Jun-12	BK3, BN2, RB1	
								Rapid Creek 1932	27-Jun-12	BN2, RB2	
		7	Mystic Road (FS231) to confluence of N&S forks of Rapid Creek	6.4	WF-I	Rapid Creek 2093	BN2	Rapid Creek 2093	30-Jul-14	BN2	
						Rapid Creek 2127	BN2	Rapid Creek 2127	30-Jul-14	BN2	
								Rapid Creek 2182	27-Jul-12	BK3, BN2,	

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Watershed	Stream or watercourse	Reach Number	Reach Description	Reach Length (miles)	Current Management Option	2014 Site	Trout Class in 2014	Sites	Date last sampled	Trout Class	Comments
										RB2	
Rapid	Rhodes Fork		Entire stream	4.1	WF-NY	Rhodes Fork 01	BK3,B N1	Rhodes Fork 01	12-Jun-14	BK3,B N1	
						Rhodes Fork 02	BK3,B N1	Rhodes Fork 02	12-Jun-14	BK3,B N1	
Rapid	Shank Gulch Creek			3.114	TBD			-			
Rapid	Silver Creek (Trib. Of Rapid)		Entire stream	3.5	WF-NY	Silver Creek (Trib. Of Rapid) 02	BK3,B N3	Silver Creek (Trib. Of Rapid) 02	09-Jun-14	BK3,B N3	
						Silver Creek (Trib. Of Rapid) 03	BK3	Silver Creek (Trib. Of Rapid) 03	23-Jun-14	BK3	
Rapid	Silver Creek (Trib. Of Castle)				WF-NY	Silver Creek (Trib. Of Castle) 01	BK3	Silver Creek (Trib. Of Castle) 01	18-Jun-14	BK3	
						Silver Creek (Trib. Of Castle) 03	BK3, RB2	Silver Creek (Trib. Of Castle) 03	01-Jul-14	BK3, RB2	
Rapid	Slate Creek		Entire stream	12.1	WF-NY	Slate Creek 117	BK3	Slate Creek 117	28-May-14	BK3	
								Slate Creek 01	21-Jul-08		
								Slate Creek 02	19-Aug-10	BK3,B N3, RB2	
								Slate Creek 03	19-Aug-10	BK3, BN3, RB2	
Rapid	South Fork Castle Creek			4.8	WF-NY- U/ HS- RBT A	Castle Creek South 02	BK3,R B2	Castle Creek South 02	26-Jun-14	BK3,R B2	
						Castle Creek South 03	BK2,R B1	Castle Creek South 03	19-Jun-14	BK2,R B1	
Rapid	South Fork Rapid Creek	1	Confluence with N Fork to confluence with Rhoads Fork	8.4	WF-NY	Rapid Creek South Fork 01	BN1	Rapid Creek South Fork 01	16-Jun-14	BN1	Bog iron in upper reach area
						Rapid Creek South Fork 02	BN1	Rapid Creek South Fork 02	19-Jun-14	BN1	
Rapid	South Slate Creek		Entire stream	4.687	WF-NY			Slate Creek South Fork 01	05-Aug-08		

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Watershed	Stream or watercourse	Reach Number	Reach Description	Reach Length (miles)	Current Management Option	2014 Site	Trout Class in 2014	Sites	Date last sampled	Trout Class	Comments
						Slate Creek South Fork 02	BK3, RB2	Slate Creek South Fork 02	17-Jun-14	BK3, RB2	
						Slate Creek South Fork 03	BK3	Slate Creek South Fork 03	13-Aug-14	BK3	
Rapid	South Victoria Creek			3.166	TBD			-			
Rapid	Summer Creek			TBD	TBD			-			
Rapid	Swede Gulch			2.833	WF-NY			Swede Gulch 01	02-Aug-94		
						Swede Gulch 02	BK2,B N3	Swede Gulch 02	16-Jun-14	BK2,B N3	
Rapid	Tillson Creek		TBD	8.9	WF-NY	Tillson Creek 02	BK3	Tillson Creek 02	11-Jun-14	BK3	
						Tillson Creek 03	BK3	Tillson Creek 03	30-Jun-14	BK3	
								Tillson Creek 01	17-Jun-08	BK3	
Rapid	Victoria Creek		Entire stream	12	WF-NY	Victoria Creek 01		Victoria Creek 01	25-Jun-14		
						Victoria Creek 02	BK2	Victoria Creek 02	25-Jun-14	BK2	
Rapid	Victory Creek				TBD			-			
Red Canyon	East Fork Hawkwright Creek			11.862	TBD			-			
Red Canyon	Fourmile Creek			9.916	TBD			-			
Red Canyon	Hawkwright Creek			5.041	TBD			Hawkwright Creek 01	13-Apr-09		
Red Canyon	Hay Creek			5.471	TBD			-			
Red Canyon	Layton Canyon			12.124	TBD			-			
Red Canyon	Lightning Creek			12.004	TBD			-			
Red Canyon	Martin Draw			3.683	TBD			-			
Red Canyon	Ninemile Draw		Entire stream	1.977	TBD			-			

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Watershed	Stream or watercourse	Reach Number	Reach Description	Reach Length (miles)	Current Management Option	2014 Site	Trout Class in 2014	Sites	Date last sampled	Trout Class	Comments
Red Canyon	Pleasant Valley Creek			12.535	TBD			Pleasant Valley Creek 02	26-May-09		
Red Canyon	Red Canyon Creek			32.538	TBD			-			
Red Canyon	S & G Canyon			3.385	TBD			-			
Red Canyon	Stone Quarry Canyon			4.582	TBD			-			
Red Canyon	Warren Gulch			4.602	TBD			-			
Red Canyon	West Fork Hawkwright Creek			5.132	TBD			-			
Red Canyon	White Draw			3.681	TBD			-			
Redwater	Beaver Creek				TBD						
Redwater	Beaver Creek (Lawrence Co.)				TBD			Beaver Creek (Law. Co.) 01	15-Jul-93		
								Beaver Creek (Law. Co.) 02	10-Jul-08	BK2	
Redwater	Crow Creek		TBD	TBD	WF-NY			Crow Ceek (Trib. of Redwater) 01	28-Jul-08	BN2, RB1	
								Crow Ceek (Trib. of Redwater) 02	29-Jul-08	BK3	
								Crow Ceek (Trib. of Redwater) 03	09-Sep-93	BN1	
								Crow Ceek (Trib. of Redwater) 05	28-Jul-08	BN2, RB1	
								Crow Ceek (Trib. of Redwater) 07	18-Aug-08	BN3	
Redwater	Datum Creek				TBD			Datum Creek 01	25-Jul-08		
Redwater	Lake Creek		Entire stream	TBD	WF-NY				29-Aug-2006	BN2, RB2	Finescale dace present
Redwater	Lightning Creek				TBD			-			
Redwater	Middle Beaver Creek				TBD			-			

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Watershed	Stream or watercourse	Reach Number	Reach Description	Reach Length (miles)	Current Management Option	2014 Site	Trout Class in 2014	Sites	Date last sampled	Trout Class	Comments
Redwater	Mill Creek				TBD			-			
Redwater	North Beaver Creek				TBD			-			
Redwater	Potato Creek				TBD			-			
Redwater	Redwater	1	Confluence w Belle Fourche River to Spearfish Creek	2	WF-I						
		2	Confluence of Spearfish Creek to Chicken Creek	TBD	TBD						
		3	Confluence of Chicken Creek to Crow Creek	TBD	TBD						
		4	Confluence of Crow Creek to Wyoming Line	TBD	TBD						
Redwater	South Beaver Creek				TBD			-			
Spearfish	Annie Creek		Entire stream	2.112	WF-NY	Annie Creek 01		Annie Creek 01	21-Aug-14		
								Annie Creek 02	19-Jul-10	NWT	
						Annie Creek 03		Annie Creek 03	09-Jun-14		
						Annie Creek 06 28May14	BK3, BN3	Annie Creek 06 28May14	28-May-14	BK3, BN3	
						Annie Creek 06 22Aug14	BK2, BN3	Annie Creek 06 22Aug14	22-Aug-14	BK2, BN3	
						Annie Creek 07		Annie Creek 07	21-Aug-14		
								Annie Creek 08	22-Oct-92	NWT	
								Annie Creek 09	27-Oct-92	NWT	
								Annie Creek 10	28-Aug-07		
						Annie Creek 11		Annie Creek 11	28-May-14		
								Annie Creek 12	19-Jul-10		
						Annie Creek 13	BK3, BN3	Annie Creek 13	09-Jun-14	BK3, BN3	

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Watershed	Stream or watercourse	Reach Number	Reach Description	Reach Length (miles)	Current Management Option	2014 Site	Trout Class in 2014	Sites	Date last sampled	Trout Class	Comments
Spearfish	Breakneck Gulch			1.494	TBD			-			
Spearfish	Calamity Gulch			2.061	TBD			-			
Spearfish	Clayton Draw			1.717	TBD			-			
Spearfish	Cole Creek			1.714	TBD			-			
Spearfish	Dead Ox Creek			3.604	TBD			-			
Spearfish	Deadhorse Gulch			2.058	TBD			-			
Spearfish	Deer Creek		TBD	1.389	TBD						
Spearfish	Dry Gulch			5.607	TBD						
Spearfish	East Branch Squaw Creek			1.474	TBD			-			
Spearfish	East Fork Higgins Gulch			2.876	TBD			-			
Spearfish	East Spearfish Creek (a.k.a. Hanna Creek)			6.452	WF-NY			Hanna Creek 01	07-Jul-08	BN1	
								Hanna Creek 02	03-Jul-08	BN2	
								Hanna Creek 03	02-Jun-98	BK3, BN1	
Spearfish	Eleven Hour Gulch			3.023	TBD			-			
Spearfish	Fish Hatchery Gulch			6.144	TBD			-			
Spearfish	Griggs Gulch			1.266	TBD			-			
Spearfish	Hellgate Gulch			1.168	TBD			-			
Spearfish	Higgins Gulch		Entire stream	18.136	WF-NY			Higgins Gulch 01	13-Jun-95	BK3, BN3	
								Higgins Gulch 02	02-Jun-94		
								Higgins Gulch 03	10-Jul-08	BK3	
								Higgins Gulch 04	01-Jul-04		
								Higgins Gulch 05	01-Jul-04		

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Watershed	Stream or watercourse	Reach Number	Reach Description	Reach Length (miles)	Current Management Option	2014 Site	Trout Class in 2014	Sites	Date last sampled	Trout Class	Comments
Spearfish	Hungry Hollow Gulch			4.393	TBD			-			
Spearfish	Icebox Gulch			2.468	TBD			Ice Box Gulch 01	01-Oct-04	BK2	
Spearfish	Intake Gulch			3.173	TBD			Intake Gulch 01	08-Jul-08	BK3, BN3	
Spearfish	North Iron Creek			5.527	WF-NY	Iron Creek North 01	BN1, RB1	Iron Creek North 01	25-Jun-14	BN1, RB1	
								Iron Creek North 02	21-Jul-04	NWT	
								Iron Creek North 03	09-Jul-08	BK2, BN2, RB2	
Spearfish	Jay Gulch			TBD	TBD			Jay Gulch 01	10-Jul-08		
Spearfish	Johnson Gulch			1.394	TBD			-			
Spearfish	Keough Draw			2.026	NF			11-Aug-08	No Fish		
Spearfish	Labrador Gulch			1.383	WF-NY	Labrador Creek 01	BK2	Labrador Creek 01	28-Aug-14	BK2	
Spearfish	Little Spearfish Creek		Entire stream	13.062	WF-NY			Little Spearfish Creek 01	08-Jul-08	BN1	Private access ponds (old hatchery) on stream
								Little Spearfish Creek 02	28-Oct-92	BK3	
								Little Spearfish Creek 03	23-Oct-92	BN3	
								Little Spearfish Creek 04	08-Jul-08	BN1	
Spearfish	Long Draw			2.721	TBD						
Spearfish	Long Valley			3.174	TBD			-			
Spearfish	Lost Camp Gulch			1.746	WF-NY	Lost Camp Gulch 01		Lost Camp Gulch 01	09-Jun-14		
								Lost Camp Gulch 02	19-Jul-10		
						Lost Camp Gulch 03		Lost Camp Gulch 03	22-Aug-14		

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Watershed	Stream or watercourse	Reach Number	Reach Description	Reach Length (miles)	Current Management Option	2014 Site	Trout Class in 2014	Sites	Date last sampled	Trout Class	Comments
Spearfish	Maurice Gulch			1.041	TBD			-			
Spearfish	McKinley Gulch			1.971	TBD			-			
Spearfish	Pettigrew Gulch			2.354	TBD			-			
Spearfish	Prospect Gulch			1.612	TBD			-			
Spearfish	Raddick Gulch			1.654	NF			Raddick Gulch 01	14-Jul-08		
Spearfish	Raspberry Gulch			2.669	TBD			-			
Spearfish	Redpath Gulch			1.23	TBD			-			
Spearfish	Robinson Gulch			4.111	TBD			-			
Spearfish	Ross Valley				WF-NY			Ross Valley 01	28-Aug-07		
						Ross Valley 02		Ross Valley 02	21-Aug-14		
Spearfish	Rubicon Gulch			2.17	WF-NY	Rubicon Gulch Creek 01	BK2	Rubicon Gulch Creek 01	29-Aug-14	BK2	
Spearfish	Schoolhouse Gulch			1.791	TBD			-			
Spearfish	South Fork Little Spearfish			4.895	TBD			-			
Spearfish	Spearfish Creek (P)	1	Confluence of Spearfish Creek and Redwater to I-90	6.509	WF-NY			Spearfish Creek 238	29-Sep-2000	BR2	
								Spearfish Creek 250			
								Spearfish Creek 253	29-Sep-2005	BR3	longnose sucker present
		2	I-90 to Homestake Plant No 1	TBD	WF-NY			Spearfish Creek 179	08-Aug-11	BN1	
								Spearfish Creek 189	22-Jul-13	BN1	
								Spearfish Creek 195	26-Aug-08	BN1	
								Spearfish Creek 198	10-Aug-11	BN1, RB1B N1	

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Watershed	Stream or watercourse	Reach Number	Reach Description	Reach Length (miles)	Current Management Option	2014 Site	Trout Class in 2014	Sites	Date last sampled	Trout Class	Comments
								Spearfish Creek 200	25-Aug-08	BN1, RB1	
								Spearfish Creek 205	10-Aug-11	BN1, RB2	
								Spearfish Creek 208	27-Aug-0810-	BN1	
								Spearfish Creek 220	24-Sep-91	BN3, RB2	
								Spearfish Creek 276	11-Aug-11	BN2	
								Spearfish Creek 293	29-Jul-11	BN1	
		3	Homestake Plant No 1 to dam for Spearfish water supply	4.3	WF-NY			Spearfish Creek 307	11-Aug-11	BK3, BN 1	Usually dry
								Spearfish Creek 327	28-Aug-08	BK3, BN1, RB2	
								Spearfish Creek 339	28-Aug-08	BK2, BN2	
								Spearfish Creek 354	24-Jul-13	BN1, RB1 BK2,	
								Spearfish Creek 357	11-Sep-08	BN1, RB1	
		5	Dam for Homestake No 1 to Homestake Power Plant No 2	1.6	WF-UT			Spearfish Creek 366	10-Sep-08	BN1, RB1	
								Spearfish Creek 374	09-Sep-08	BN2, RB2	
		6	Homestake No 2 to ½mi above confluence of Little Spearfish Creek	6	WF-NY			Spearfish Creek 401	09-Sep-08	BN1	
								Spearfish Creek 406	25-Jul-13	BN1	
								Spearfish Creek 415	28-Jul-11	BN2, RB2	
								Spearfish Creek 422	24-Jul-11	BN1	
								Spearfish Creek 429	08-Sep-08	BN1, RB2	
								Spearfish Creek 432	08-Oct-08	BN1	
								Spearfish Creek 441	29-Jul-11	BN2	
								Spearfish Creek 453	04-Sep-08	BN1	

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Watershed	Stream or watercourse	Reach Number	Reach Description	Reach Length (miles)	Current Management Option	2014 Site	Trout Class in 2014	Sites	Date last sampled	Trout Class	Comments
								Spearfish Creek 455	01-Aug-11	BN1	
		7	½mi above Little Spearfish Creek to Hanna Creek	5.6	WF-NY			Spearfish Creek 462	04-Sep-08	BN1	
								Spearfish Creek 465	03-Sep-08	BN1	
								Spearfish Creek 472	01-Aug-11	BN2	
								Spearfish Creek 480	22-Sep-08	BN1	
								Spearfish Creek 490	25-Jul-13	BN1	
								Spearfish Creek 510	02-Sep-08	BN1	
								Spearfish Creek 518	03-Aug-11	BN1	
								Spearfish Creek 522	24-Jul-13	BN1	
								Spearfish Creek 543	02-Sep-08	BN1	
								Spearfish Creek 549	04-Aug-11	BN1	
						Spearfish Creek 636	BK2,B N1	Spearfish Creek 636	25-Jun-14	BK2,B N1	
								Spearfish Creek 574	18-Aug-08	BN1B K2	
		8	Confluence of Hanna Creek to headwaters	12.3	WF-NY			Spearfish Creek 585	23-Jul-13	BK3, BN1	
								Spearfish Creek 596	02-Aug-11	BN1B K3	
								Spearfish Creek 599	19-Aug-08	BK3, BN2	
								Spearfish Creek 601	19-Aug-08	BK3, BN1	
								Spearfish Creek 607	03-Aug-11	BN2B K3	
								Spearfish Creek 614	20-Aug-08	BK3, BN2	
								Spearfish Creek 622	21-Aug-08	BK3, BN2	
								Spearfish Creek 656	18-Aug-	BK2B K3	
								Spearfish Creek 650	09-Aug-11	BK1, BN2	

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Watershed	Stream or watercourse	Reach Number	Reach Description	Reach Length (miles)	Current Management Option	2014 Site	Trout Class in 2014	Sites	Date last sampled	Trout Class	Comments
								Spearfish Creek 654	11-Aug-11	BK1	
								Spearfish Creek 3745	27-Jul-11	BN2, RB2B K1	
Spearfish	Cleopatra Creek		Entire stream	5.574	WF-NY			Cleopatra Creek 01	25-Aug-10		Sampled by an Unknown Consultant Firm for Mining
								Cleopatra Creek 02	22-Sep-04	BK3	Sampled by KNK Aquatic Ecology
						Cleopatra Creek 03	BK2	Cleopatra Creek 03	29-Aug-14	BK2	
								Cleopatra Creek 04	24-Sep-04	BK3	Sampled by KNK Aquatic Ecology
								Cleopatra Creek 05	23-Sep-04	BK3	Sampled by KNK Aquatic Ecology
						Cleopatra Creek 06	BK2	Cleopatra Creek 06	27-Aug-14	BK2	
								Cleopatra Creek 07	24-Sep-04		Sampled by KNK Aquatic Ecology
						Cleopatra Creek 08	BK1	Cleopatra Creek 08	28-Aug-14	BK1	
								Cleopatra Creek 09	25-Aug-05	BK3	Sampled by Chadwick Ecological Services
								Cleopatra Creek 10	18-Sep-07	BK2, BN3, RB2	
								Cleopatra Creek 11	31-Aug-06		
						Cleopatra Creek 12		Cleopatra Creek 12	19-Aug-14		
Spearfish	Sweet Betsey Gulch			1.698	TBD			-			

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Watershed	Stream or watercourse	Reach Number	Reach Description	Reach Length (miles)	Current Management Option	2014 Site	Trout Class in 2014	Sites	Date last sampled	Trout Class	Comments
Spearfish	Timber Gulch			3.608	TBD			-			
Spearfish	Ward Draw		Entire stream	4.35	WF-NY			Ward Draw 01	03-Jul-08	BK3	
								Ward Draw 02	04-Jun-97	BK2	
Spearfish	Wildcat Gulch			1.88	TBD			-			
Spring Creek	Battleax Creek			1.595	TBD			-			
Spring Creek	Bear Gulch		Entire stream	3.964	WF-UT			-			
Spring Creek	Bitter Creek			2.964	TBD			-			
Spring Creek	Black Miner Gulch			3.354	TBD			-			
Spring Creek	Burnt Fork			2.79	TBD			-			
Spring Creek	Calument Creek				TBD			-			
Spring Creek	China Gulch			8.016	TBD			-			
Spring Creek	Clog Gulch			2.562	TBD			-			
Spring Creek	Coon Hollow			1.07	TBD			-			
Spring Creek	Cowboy Gulch			1.655	TBD			-			
Spring Creek	Deadman Creek			TBD	TBD			-			
Spring Creek	Dutch Creek			1.175	TBD			-			
Spring Creek	East China Gulch			1.437	TBD			-			
Spring Creek	Gordon Gulch			4.696	TBD			-			
Spring Creek	Graveyard Gulch			0.865	TBD			-			
Spring Creek	Hay Draw			2.394	TBD			-			
Spring Creek	Horse Creek		Entire stream	8.022	WF-NY			Horse Creek 01	13-May-09	NWT	
								Horse Creek 02	13-May-09	NWT	
Spring Creek	Joe Dollar Gulch			1.426	TBD			-			
Spring Creek	Johnson Canyon			1.085	TBD			-			

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Watershed	Stream or watercourse	Reach Number	Reach Description	Reach Length (miles)	Current Management Option	2014 Site	Trout Class in 2014	Sites	Date last sampled	Trout Class	Comments
Spring Creek	Johnson Gulch			3.437	TBD			-			
Spring Creek	Lena Gulch			4.116	TBD			-			
Spring Creek	Little Thompson Draw			0.706	TBD			-			
Spring Creek	Long Draw			1.933	TBD			-			
Spring Creek	Loves Creek			5.246	TBD			-			
Spring Creek	Marshall Gulch			6.057	TBD			-			
Spring Creek	Medicine Creek			4.502	TBD			-			
Spring Creek	Moonshine Canyon			2.031	TBD			-			
Spring Creek	Negro Creek			TBD	TBD			-			
Spring Creek	Nelson Creek			2.358	TBD			-			
Spring Creek	Newton Fork Creek		Entire stream	12.805	WF-NY			Newton Fork Creek 01	20-May-09	BK2, RB2	
Spring Creek	Palmer Gulch			8.472	TBD			Palmer Gulch 01	13-May-09	NWT	
Spring Creek	Patterson Creek			4.189	TBD			-			
Spring Creek	Penalua Gulch			3.934	TBD			-			
Spring Creek	Prairie Chicken Draw			2.252	TBD			-			
Spring Creek	Rabbit Gulch			4.272	TBD			-			
Spring Creek	Red Dog Gulch			0.409	TBD			-			
Spring Creek	Reno Gulch			6.151	TBD			-			
Spring Creek	Rockerville Gulch			11.821	TBD			-			
Spring Creek	Ruby Creek			1.365	TBD						
Spring Creek	Ruby Gulch			1.21	TBD			-			
Spring Creek	South Fork Whaley Gulch			1.189	TBD			-			

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Watershed	Stream or watercourse	Reach Number	Reach Description	Reach Length (miles)	Current Management Option	2014 Site	Trout Class in 2014	Sites	Date last sampled	Trout Class	Comments
Spring Creek	Spring Creek (Trib. Of Cheyenne)					Spring Creek (Trib of Cheyenne) 01	RB2	Spring Creek (Trib of Cheyenne) 01	04-Aug-14	RB2	
								Spring Creek (Trib of Cheyenne) 02	21-Sep-00	BK2, BN1	
								Spring Creek (Trib of Cheyenne) 03	28-Jul-93	BK3, BN3	
								Spring Creek (Trib of Cheyenne) 04	23-Jul-09	BK3, BN2, RB2	
								Spring Creek (Trib of Cheyenne) 05	31-Jul-06	BK3	
						Spring Creek (Trib of Cheyenne) 06	BK2	Spring Creek (Trib of Cheyenne) 06	23-Jun-14	BK2	
								Spring Creek (Trib of Cheyenne) 07	23-Jul-09		
								Spring Creek (Trib of Cheyenne) 08	03-Aug-09	RB2	
								Spring Creek (Trib of Cheyenne) 09	11-Sep-96	BN2	
								Spring Creek (Trib of Cheyenne) 10	13-Aug-09		
								Spring Creek (Trib of Cheyenne) 11	08-Sep-98	BK3, BN1	
								Spring Creek (Trib of Cheyenne) 12	16-Aug-11	BN2, RB2	
								Spring Creek (Trib of Cheyenne) 13	20-Oct-97	BK3, BN3	
								Spring Creek (Trib of	15-Aug-11	NWT	

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Watershed	Stream or watercourse	Reach Number	Reach Description	Reach Length (miles)	Current Management Option	2014 Site	Trout Class in 2014	Sites	Date last sampled	Trout Class	Comments
								Cheyenne) 14			
Spring Creek	Spring Creek	2	¼mi above US16 to Sheridan Lake Road	3	WF-I						
		3	Sheridan Lake Road to Sheridan Lake	4.1	WF-I						Stocked at bridges and access points
		4	Sheridan Lake to 2½mi west of US385	18.6	WF-I						Stocked at bridges and access points
		5	2½mi above US385 to headwaters	11.5	WF-NY						
Spring Creek	Sunday Gulch		TBD	8.969	HS			Sunday Gulch 01	13-May-09		
Spring Creek	Tenderfoot Creek		TBD	5.046	TBD			Tenderfoot Creek 01	15-May-09		
Spring Creek	Tenderfoot Gulch			1.778	TBD			-			
Spring Creek	Thompson Draw			1.28	TBD			-			
Spring Creek	Tree Draw			0.824	TBD			-			
Spring Creek	Vanderlehr Creek		TBD	12.623	TBD			Vanderlehr Creek 01	16-Jun-93	BK3, BN3	
								Vanderlehr Creek 02	05-Jun-09	BK,3	
Spring Creek	Victoria Gulch			3.499	TBD			-			
Spring Creek	Whaley Gulch			2.802	TBD			-			
Spring Creek	White House Gulch			1.339	TBD			-			
Spring Creek	Whitehorse Creek			3.565	TBD			-			
Spring Creek	Willow Creek			2.299	TBD			Willow Creek 01	11-Jun-09	BK3	
Whitewood	City Creek			1.993	WF-NY	City Creek 01	NWT	City Creek 01	02-Sep-14	NWT	

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Watershed	Stream or watercourse	Reach Number	Reach Description	Reach Length (miles)	Current Management Option	2014 Site	Trout Class in 2014	Sites	Date last sampled	Trout Class	Comments
Whitewood	Blacktail Gulch				WF-NY	Blacktail Gulch 01	BK2	Blacktail Gulch 01	25-Aug-14	BK2	
						Blacktail Gulch 02	BK2	Blacktail Gulch 02	03-Sep-14	BK2	
Whitewood	Deadwood Creek		TBD	5.56	WF-NY			Deadwood Creek 01	26-Aug-10	BK2	Sampled by Unknown Consultant Firm for Mining
						Deadwood Creek 02	BK1	Deadwood Creek 02	29-Aug-14	BK1	
								Deadwood Creek 03	15-Sep-95		Sampled by OEA Research Inc.
								Deadwood Creek 04	31-Aug-01		Sampled by Chadwick Ecological Services
								Deadwood Creek 05	16-Jul-08	BK2, BN1	
						Deadwood Creek 06	BK3	Deadwood Creek 06	21-Aug-14	BK3	
								Deadwood Creek 07	10-Oct-91	BK3	Sampled by Chadwick Ecological Services
						Deadwood Creek 08	BK1	Deadwood Creek 08	27-Aug-14	BK1	
						Deadwood Creek 09	BK1	Deadwood Creek 09	26-Aug-14	BK1	
						Deadwood Creek 11	BK2	Deadwood Creek 11	26-Aug-14	BK2	
						Deadwood Creek 10	BK3	Deadwood Creek 10	02-Sep-14	BK3	
								Deadwood Creek 12	26-Aug-10		
Whitewood	Englewood Creek		Reno Creek to ½mi above Englewood	6.5	HS						
Whitewood	Fantail Creek			1.751	WF-NY	Fantail Creek 01	BK3	Fantail Creek 01	27-Aug-14	BK3	

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Watershed	Stream or watercourse	Reach Number	Reach Description	Reach Length (miles)	Current Management Option	2014 Site	Trout Class in 2014	Sites	Date last sampled	Trout Class	Comments
								Fantail Creek 02	15-Jul-08	BK2	
						Fantail Creek 03		Fantail Creek 03	19-Aug-14		
Whitewood	Gold Run			1.327	TBD			Gold Run 02	26-Aug-13		
								Gold Run 01	28-Aug-13		
Whitewood	Grizzly Gulch Creek				WF-NY			Grizzly Gulch 01	31-Jul-08	BK2	
						Grizzly Gulch 02 7Aug14	BK3,B N2	Grizzly Gulch 02 7Aug14	07-Aug-14	BK3,B N2	
						Grizzly Gulch 02 25Aug14	BK3,B N3	Grizzly Gulch 02 25Aug14	25-Aug-14	BK3,B N3	
Whitewood	Nevada Gulch Creek			2.905	WF-NY	Nevada Gulch Creek 01	BK2	Nevada Gulch Creek 01	27-Aug-14	BK2	
						Nevada Gulch Creek 01		Nevada Gulch Creek 01	18-Aug-14		
								Nevada Gulch 02	26-Aug-14		
								Nevada Gulch 03	15-Jul-08		
Whitewood	Sandy Creek			2.213	TBD			-			
Whitewood	Sawpit Creek							Sawpit 01	Dry 2014		
Whitewood	Sheeptail Creek				WF-NY	Sheeptail Creek 01	BK2	Sheeptail Creek 01	03-Sep-14	BK2	
Whitewood	Slaughterhouse Creek							Slaughterhouse Creek 01	Dry 2014		
Whitewood	Spring Creek			TBD	TBD						
Whitewood	Stewart Gulch Creek				WF-NY	Stewart Gulch Creek 01	BK1	Stewart Gulch Creek 01	20-Aug-14	BK1	

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Watershed	Stream or watercourse	Reach Number	Reach Description	Reach Length (miles)	Current Management Option	2014 Site	Trout Class in 2014	Sites	Date last sampled	Trout Class	Comments
Whitewood	West Strawberry Creek			2.976	WF-NY	West Strawberry 01	BK2,B N2	West Strawberry 01	07-Aug-14	BK2,B N2	
								West Strawberry 02	15 October 1998	BK3	
Whitewood	Whitetail Creek		TBD	5.247	WF-NY	Whitetail Creek 01	BN1	Whitetail Creek 01	30-Jun-14	BN1	
						Whitetail Creek 03	BK2	Whitetail Creek 03	20-Aug-14	BK2	
						Whitetail Creek 04	BK2	Whitetail Creek 04	27-Aug-14	BK2	
Whitewood	Whitewood Creek	2	I-90 to confluence with Whitetail and Englewood	25.802	WF-I-NY-NF	Whitewood Creek 01	BN1,R B2	Whitewood Creek 01	28-Jul-14	BN1,R B2	
								Whitewood Creek 02	11-Oct-96		
						Whitewood Creek 03	BN2,R B2	Whitewood Creek 03	29-Jul-14	BN2,R B2	
								Whitewood Creek 04	24-Sep-97	BK2, BN3	Sampled by OEA Research Inc.
						Whitewood Creek 05	BN 3	Whitewood Creek 05	24-Jul-14	BN3	
								Whitewood Creek 06	28-Aug-13	BK3, BN1	
								Whitewood Creek 07	27-Oct-93	BK3, BN3	Sampled by Chadwick Ecological Services
						Whitewood Creek 08	BN 1	Whitewood Creek 08	28-Jul-14	BN1	
								Whitewood Creek 09	27-Aug-13	BN1	Sampled by GEI
								Whitewood Creek 10	19-Sep-99	BK2, BN2	Sampled by KNK Aquatic Ecology
								Whitewood Creek 11	18-Sep-99	BK2, BN1	Sampled by KNK Aquatic Ecology
								Whitewood Creek 12	15-Sep-95		Sampled by OEA Research Inc.

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Watershed	Stream or watercourse	Reach Number	Reach Description	Reach Length (miles)	Current Management Option	2014 Site	Trout Class in 2014	Sites	Date last sampled	Trout Class	Comments
								Whitewood Creek 13	17-Sep-95		Sampled by OEA Research Inc.
						Whitewood Creek 14	Bk 3, BN 1	Whitewood Creek 14	22-Jul-14	BK3,B N1	
						Whitewood Creek 15	BK 2 ,BN1	Whitewood Creek 15	22-Jul-14	BK2,B N1	
						Whitewood Creek 16	BK3, BN 1	Whitewood Creek 16	24-Jul-14	BK3,B N1	
								Whitewood Creek 17	11-Jul-13	BK3, BN1	
								Whitewood Creek 19	24-Oct-12	BN3	Sampled by Unknown Consultant Firm for Mining
								Whitewood Creek 20	23-Oct-12	BN3	Sampled by Unknown Consultant Firm for Mining
								Whitewood Creek 21	17-Aug-09	NWT	
								Whitewood Creek 22	24-Oct-12	NWT	
								Whitewood Creek 23	10-Jun-03	BK2	
								Whitewood Creek 24	22-Aug-10	BK2, BN2	
								Whitewood Creek 25	12-Aug-09	BN2, RB2	
								Whitewood Creek 26	04-May-05	BN1	
								Whitewood Creek 27	17-Jul-08	BN3	
								Whitewood Creek 28	11-Jul-13	NWT	
								Whitewood Creek 29	23 JULE 2009	BN3	

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Watershed	Stream or watercourse	Reach Number	Reach Description	Reach Length (miles)	Current Management Option	2014 Site	Trout Class in 2014	Sites	Date last sampled	Trout Class	Comments
Whitewood	Yellow Creek		Entire stream	2.689	WF-NY			Yellow Creek 01	21-Jul-08	BK2	
						Yellow Creek 02	BK3	Yellow Creek 02	25-Aug-14	BK3	

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Appendices

Appendix 1. Open House angler comments concerning streams in western South Dakota.

Comments collected at Open House, February 28, 2012

- Fear of hurting Sheridan by drawdowns for Spring Creek
- Elk Creek – Good Fishing!!
- Expand Catch and Release in Rapid City
- Do habitat work on Rapid Creek in town
- Has there been return on SMB in Rapid Creek?
- Sheridan shouldn't be drawn down to fill Spring Creek
- Spring Creek below Sheridan – mimic Grace Coolidge Walk-in-Pools
- Large fish in Box Elder Creek 15 years ago
- Add Cleopatra Creek to Catch and Release
- BNT in Spring Creek
- Keep 1 over 14 regulation
- Maintain ongoing habitat work
- Applaud rehab project in Pactola Basin
- Increase law enforcement in Basin. Applaud Meiers for what he does do!
- 2 fish limit instead of 5 on streams
- Trap and transfer BKT to places they used to be and are disconnected from main streams
- Water specific stream regulations depending on current conditions – example would be drought or high water, sampling results, etc. – other states change regulations each year and are water specific.

Comments collected at Open House, January 17, 2013

- Catch and release on Rapid Creek in Rapid City
- Catch and release everywhere
- Cutthroat trout stocked everywhere
- Status of Redwater??
- Catch and release in Rapid City
- Work with Forest Service so no more cattle leases in Black Hills – stream damage by cattle is significant – and impacts drinking water quality in Rapid Creek
- Spring Creek (Flume Trail) water issue
- 2 fish limit on BH trout streams instead of current limit of 5
- Catch and release and artificial only on Rapid Creek though Rapid City limits
- Specific management plans and fisheries goals for each watershed
- 50% increase in number of miles of catch and release stream fishing
- Special regulations on high traffic areas – Silver City, Rapid Creek above Canyon Lake, Spring Creek
- Add aquatic plants in the Silver City area of Rapid Creek to improve food source for fish
- Update BH stream management plan with specifics for major creeks (Rapid Creek, Spring Creek, Castle Creek and Spearfish Creek)
- Extend Pactola Basin project throughout catch and release stretch – to Placerville
- Need to stock more brown trout as self-sustaining species in Black Hills streams
- Develop watershed and/or stream specific regulations

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Comments collected at Open House, January 22, 2014:

- Need habitat work on Spring Creek below Sheridan Lake to create deep holes (>5 per mile)
- Need maintenance on habitat projects in Rapid Creek in Rapid City

Appendix 2. Historical Synopsis of Special Management Regulations within the Black Hills Trout Management Area.

1981 *Creation of Hanna Creek Special Management Area*

- Catch and Release
- Barbless, artificial lure only
- Possession of trout or natural (organic) baits with 100 feet of stream is prohibited

Creation of Rapid Creek I Special Management Area (from Kelly Gulch to Castle Creek)

- Daily limit of one trout 15 inches or longer
- Barbless, Artificial lures only
- Possession of trout smaller than 15 inches or natural (organic baits) with 100 feet of stream is prohibited

Creation of Rapid Creek II Special Management Area (from Lake Pactola to the confluence of the north and south forks of Rapid Creek except the waters described in Rapid Creek I above)

- Daily trout limit is 8, only one which may be a brown trout longer than 15 inches
- October 1 through December 31

1985 *Removal of barbless hooks requirement for artificial lures*

Regulations on Rapid Creek II were made year round

Creation of Maurice Special Management Area on Spearfish Creek

- Catch and Release
- artificial lures only
- Possession of trout or natural (organic) baits with 100 feet of stream is prohibited

1988 *Rapid Creek Special Management unit I Eliminated*

1991 *Creation of Pactola Basin Area from bridge below Pactola Dam to Foot Bridge at Placerville Camp*

- Catch and release
- Artificial lures only

Creation of Silver City Special management area on Rapid Creek from USFS turnaround at Silver City to Confluence with Castle Creek

Silver City, Hanna, and Maurice areas were changed to the following restrictions

- Daily limit is 4 brown trout 11 inches or less
- Brown trout over 11 inches and all rainbow, brook and cutthroat trout must be released
- Artificial lures only

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- Possession of organic bait within 100 feet of stream is prohibited

Modified text for size limits to include: Where and when size limits applied, all species of fish in possession must be whole and only gills, entrails and scales could be removed

1993 *Only 1 brown or rainbow trout over 14 inches could be included in the daily limit*

Only 1 brook trout over 12 inches could be included in daily limit

Anglers could take an additional limit of 8 brook trout under 8 inches in length

1994 *Pactola Basin Area expanded to include section of stream from outlet of stilling basin to the footbridge at Placerville*

1997 *Artificial Lures definition modified to:*

“Article lures include flies, jigs, spoons, spinners and plugs made of metal, plastic, wood, hair, feathers and other nonedible materials. Artificial lures do not include fish eggs, moldable scented baits, naturally occurring foods or man-made food.”

Created and Defined Black Hills Trout Management Area

Daily limit reduced to 5 trout with only 1 over 14 inches allowed

Eliminated Silver City Special Management Area on Rapid Creek

Eliminated Hanna Creek Special Management Area

Created of Yates Ponds Special Management Area

- Catch and release
- Artificial lures only

Created Crow Creek Special Management area from GFP property to Redwater and

Meadow Brook Golf Course Special Management Area on Rapid Creek

- Trout over 10 inches must be released
- Artificial lures only

Modified Maurice Special Management Area to allow taking of all trout EXCEPT rainbow trout

Expanded Pactola Basin Special Management Area to include the Stilling Basin

2000 *Eliminated Crow Creek Special Management Area*

2004 *Highgrading of trout within the BHTMA is not permitted*

2010 *Creek chubs may be taken by hook and line (by licensed anglers) for use in waters where live minnows or baitfish are allowed*

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Appendix 3. Summary of questions and comments heard during the Black Hills Stream Fish Management meeting, May 16, 2013.

An open public meeting regarding only stream fish management in the Black Hills was held 7PM to 9 PM on May 16, 2013 at the Outdoor Campus West in Rapid City. The meeting began with a presentation by Game, Fish and Parks staff of results from the stream surveys conducted during 2012. A question and comment period (lasted 50 minutes) for anglers to visit with fisheries staff followed and below are topics and questions addressed.

- Is it possible to put a Catch and Release sign at the top of the road into Pactola Basin?
- Do the Game and Fish have data on mink predation, how many they eat in a day, etc?
- Concern for electrofishing surveys and impacts this method has on fish.
- Any theory on why recruitment or survival appears to be low for adult fish in streams?
- Cutthroat, once they were stocked and appreciated, why not try them again?
- No data behind Baken Park.
- Do water levels correspond to high trout number years?
- Is there public access to McGee Siding area?
- Seems to be a decrease in numbers of trout once you get to the 12 inch size.
- Is there data on angling pressure to compare what past pressure was compared to now?
- How often is Rapid Creek in the Basin area patrolled?
- Do you see Rainbow trout recruited to adult sizes?
- Status of Didymo?
- If we are stocking Rainbow trout at \$3 per fish, they anglers are getting a good deal. We should have lower limits so anglers don't take more than their license cost.
- Do you see a decline in the Rapid Creek fishery? Would like to see a wild fishery in Rapid City.
- What is the stocking cycle in creeks?
- Abundance of trout in Rapid City is high, quality of habitat is good, but 15 inch trout are hard to come by.
- Used to get 13 to 16 inch trout from Rapid Creek in Rapid City, by now only fish up to 13 inches.
- More and more people fishing and some are taking trout home.
- Would like to see more catch and release in Rapid Creek in Rapid City. General impression is the fish in the Golf Course (catch and release area) portion of the creek are bigger.
- Shouldn't Rapid Creek in Rapid City be patrolled by game wardens?
- Quality wild trout fisheries not as many as we think. These rare fisheries are unique. Our regulations are very simple while other states are more complex. Need to manage to potential and bring back Class 1 fisheries.
- Larger trout in the deeper holes and some anglers specifically fish these. Need more areas for these larger fish.
- Enjoy catching wild trout and believe anglers are keeping too many larger trout.
- Have been interviewed by angler survey clerks in Rapid City, three times last year, but never checked by a game warden.
- Need projects in streams, in areas identified as needing some improvements. Small scale projects would be good.
- I didn't realize people eat trout! And past habitat projects are in need of work. They are no longer functioning as they were intended.

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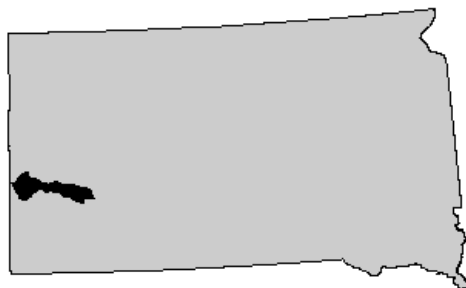
- Spring Creek, the valve is not being used. Need small ponds or deep holes added to the creek below Sheridan to benefit the fishery in this area.
- Need to manage for different anglers. Specific fishing areas for the different types of angler.
- What we have in the Black Hills is ridiculously special. Take people out on a trip and they want to come back to this place.

Appendix 4. Subunits/watersheds of the Black Hills Fisheries Management Area with associated hydrologic unit codes (HUCs) created by the United States Geological Survey (USGS).

Watershed Name	HUC
Battle Creek	1012010908
Bear Butte	1012020207
Beaver Creek West	1012010704
Beaver Creek	1012010902
Box Elder Creek	1012011103
Chicken Creek	101202030104
Crow Creek	1012020301
Elk Creek	1012011106
Fall River	1012010901
False Bottom Creek	101202030402
French Creek	1012010906
Lame Johnny Creek	1012010904
Pass Creek	1012010705
Rapid Creek	1012011001, 1012011002
Red Canyon Creek	1012020303
Spring Creek	1012010909, 1012010910
Spearfish Creek	10120203
Whitewood Creek	1012020202

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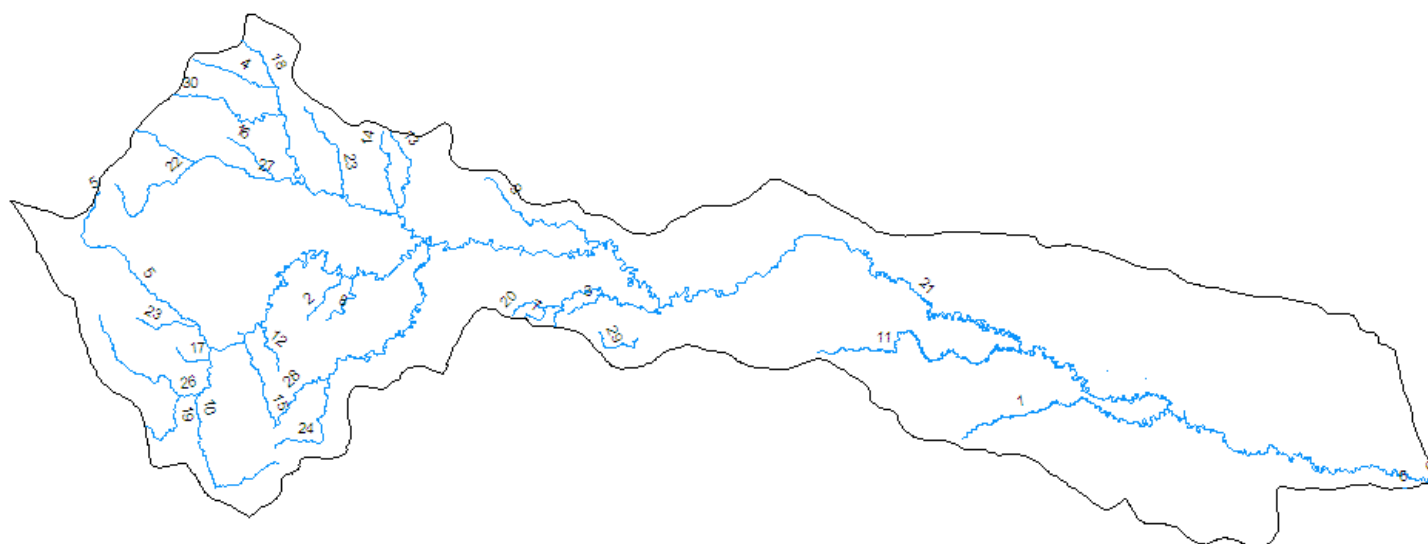
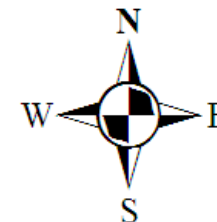
Rapid Creek Watershed



Rapid Creek Watershed

- | | |
|--------------------------------|------------------------------|
| 1. Antelope Creek | 26. South Fork Castle Creek |
| 2. Bittersweet Creek | 27. South Fork Rapid Creek |
| 3. Brush Creek | 28. South Slate Creek |
| 4. Buskela Creek | 29. South Victoria Creek |
| 5. Castle Creek | 30. Tillson Creek |
| 6. Cheyenne River | 31. 1911 H. |
| 7. Clear Creek | 32. Bull Pond |
| 8. Crooked Creek | 33. Canyon Lake |
| 9. Deer Creek | 34. Cement Plant Pond |
| 10. Ditch Creek | 35. Deerfield Reservoir |
| 11. Dry Creek | 36. Dredge Pond 1 |
| 12. Dutchman Creek | 37. Dredge Pond 2 |
| 13. East Gimlet Creek | 38. Firehouse Pond |
| 14. Gimlet Creek | 39. Jackson Boulevard Pond |
| 15. Gold Run | 40. Lake Haven Crossing |
| 16. Hop Creek | 41. LDI |
| 17. Nichols Creek | 42. Lower Lawler (Jim Creek) |
| 18. North Fork Rapid Creek | 43. Memorial Pond |
| 19. Pole Creek | 44. Pactola Reservoir |
| 20. Prairie Creek | 45. Pactola Stilling Basin |
| 21. Rapid Creek | 46. Reynolds Custer Trail |
| 22. Rhoads Fork | 47. Reynolds DU pond |
| 23. Silver Creek | 48. Slate Creek Dam |
| 24. Slate Creek | 49. Upper Lawler (Jim Creek) |
| 25. South Branch Prairie Creek | |

Watershed Area 188,482 ha
Managed Lakes/Reservoirs 531 ha
Length of Streams 577 km



0 3 6 12 Kilometers
0 3 6 12 Miles

Fisheries Management Plan for Black Hills Streams, 2015-2019

Rapid Creek Watershed

Rapid Creek Watershed

Description

The Rapid Creek watershed is the largest within the BHFMA covering approximately 277,400 acres. Rapid Creek is also the largest stream in the BHFMA. Its watershed supplies municipal water to the city of Rapid City and other surrounding communities. It is also an important stream for anglers and has two dams on it creating Pactola Reservoir and Canyon Lake, which provide many forms of recreation.

The Rapid Creek watershed begins with its headwaters north and west of the town of Rochford and with the Castle Creek forks located south of Deerfield Reservoir. Castle Creek runs through Deerfield Reservoir and enters Rapid Creek near Mystic. Rapid Creek runs east through Pactola Reservoir, Canyon Lake, and Rapid City before entering the Cheyenne River about 13 miles east of Farmingdale. The upper Rapid Creek watershed is located in a pine/spruce forest which is largely managed by the United States Forest Service.

Although Rapid Creek is highly regulated by dams at Deerfield and Pactola reservoirs, Rapid Creek, like most streams in the Black Hills, can experience drastic changes in flow. The area above Pactola Reservoir is affected by flows coming out of Deerfield Reservoir into Castle Creek and by runoff from the upper part of the watershed. The lower part of Rapid Creek is mostly affected by flows coming out of Pactola Reservoir, which is regulated by the Bureau of Reclamation. Most of western South Dakota experienced moderate to severe drought from 2002 to 2008 (USGS 2008), followed by four years of above average moisture, and in 2012, lower than average moisture. Mean annual flow was as high as 140 cubic feet per second (cfs) in 1997, as low as 23 cfs in 2008, and back up to 92 cfs in 2011. This included daily flows over 400 cfs in 1996, as low as 12 cfs in 2008, over 300 cfs in 2010, and again over 400 cfs in 2011. These variable flow events affected fish populations and habitat throughout Rapid Creek.

Another concern for Rapid Creek fish populations is the invasive diatom didymo that was discovered in 2002. By 2004, large mats of didymo were present in the creek and generated complaints about esthetics, and water quality. Around the same time a decline in the trout population and a change in population structure became apparent. Thereafter, research began to determine the relationship between didymo and the trout population (James et al. 2010a, James et al. 2010b).

Stream Fisheries Management

The majority of Rapid Creek and its tributaries are managed as wild fish (natural yield) fisheries with a daily limit of five trout (in any combination) with one allowed 14 inches or longer. Two areas of Rapid Creek are managed with a catch and release, no organic bait regulation for all trout. These are: 1) a two-mile stretch from the footbridge at Placerville Church Camp to Pactola Dam, including the stilling basin, and 2) the area in Rapid City from Jackson Boulevard upstream through the Meadowbrook Golf Course to Park Drive. Two areas of Rapid Creek are managed with catchable rainbow trout stockings. One of these is from Braeburn Park (above Cleghorn Fish Hatchery) upstream to the United States Geologic Survey gaging station. This area receives monthly stockings of 125 catchable (11 inch) rainbow trout from May through August. The other area is from Silver City (above Pactola Reservoir) upstream into a walk-in-

Fisheries Management Plan for Black Hills Streams, 2015-2019

Rapid Creek Watershed

fishery. This area is supplemented with five rainbow trout stockings of 300 11-inch fish and 15 15-inch fish from April to August.

In addition to Rapid Creek, one area on Castle Creek is managed with hatchery rainbow trout. Catchable size rainbow trout are stocked from Castle Peak Campground to the Castle Creek confluence with Rapid Creek, providing anglers 11 inch trout to catch.

Stream Habitat

Water quality, flow and habitat are critical components of Rapid Creek watershed trout fishery. Trout populations typically decrease during drought periods or with repeated years of low winter time flows. High flow periods can also impact trout populations and change habitat features over time. For example, between 1995-1999, record high flows during the months of May-August occurred with corresponding high wintertime flows. The high flows impacted the stream bed and sediment distribution along the creek below Pactola Dam. Habitat features such as aquatic macrophytes and woody debris, critical for providing cover for various trout life stages, are lost during these high and low flow events.

Between 1977-1991 twelve miles of Rapid Creek were improved. Table 2 summarizes these habitat improvements.

Table 2. Stream habitat projects within the Rapid Creek Watershed, South Dakota. NA-Not available.

Location	Year	Miles	Cost
Sioux Park	1977	2.8	\$100,000
Baken Park	1979	0.6	\$100,000
Sioux Park and Black Hills Packing Plant	1983	0.5	\$45,000
Black Hills Packing Plant	1984	1.5	\$84,000
Cleghorn Fish Hatchery	1988	0.5	\$35,000
5 th Street to Maple Ave	1989-1990	0.7	\$44,200
Maple Ave to Fairgrounds	1990-1991	0.7	\$49,500
Below Pactola	1987-1988	1.5	\$43,155
Above Pactola	1989-1990	2.8	\$75,000
Silver City and Hisega	1990-1991	0.9	\$51,635
Castle Creek, Instream cover	1991	2.0	\$37,158
Castle Creek, Barte, instream cover	1994	0.1	NA
Johnson Siding, Mckie, instream habitat	1995	0.2	NA
Pactola Basin, Holding cover	1997	0.5	\$8,710
Pactola Basin check structure, passage	1999	1.0	\$114,279
Castle Creek Riparian Fence	2001	0.5	\$15,587
Rapid Creek in Rapid City, Habitat and Park development	2002	0.5	\$220,000
Castle and Rapid Creek, Willow planting	2003	0.5	\$5,000

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Rapid Creek Watershed

Additional projects include riparian fencing on Dumont Pond and Castle Creek, several SIP (Stream Improvement Projects) on private ground and bank stabilization below Pactola Basin. Numerous studies in cooperation with the South Dakota School of Mines and South Dakota State University have also been completed. Due to high flow events, aging of materials, and changes in stream characteristics, not all habitat projects implemented for Rapid and Castle Creeks continue to achieve their designed purpose. Maintenance of structures is an ongoing need and part of coldwater habitat enhancement efforts.

Stream Access

State law allows use of “navigable” streams as long as the angler stays within the watered area or within the “high water mark”. The high water mark is indicated by the continuous presence and action of water where a distinct mark is left either by erosion, destruction of terrestrial vegetation, or some other easily recognized characteristic (1985 S.D.Sess.Laws ch. 337, § 2). Legal access to the watered area within a South Dakota Black Hills stream is accomplished in two ways: 1) by permission of an adjacent landowner if the land is closed or posted, or 2) via a public right-of-way, such as road crossing or public land.

The above rules allow for fishing throughout most of the Rapid Creek watershed. Streams within the watershed are available for year-round open-water fishing. High flows at certain times (particularly spring and early summer) can limit access within the streams, but if adjacent land is public or landowner access is granted on private land, shore fishing is a year round opportunity.

Popular fishing areas with good access on Rapid Creek are around Pactola Reservoir and within Rapid City. Trail access and parking are provided via short gravel roads to the immediate areas of Rapid Creek above and below Pactola Reservoir. Access to Rapid Creek within the limits of Rapid City is easily accomplished by way of a concrete path running adjacent to the creek through the city.

Access is also good along a large portion of Castle Creek. Above Deerfield Reservoir access via vehicle is provided by FS Rd 291. This road parallels Castle Creek for about two miles and then continues along almost the entirety of Ditch Creek. Immediately below Deerfield Reservoir walking access is provided for about 1½ miles along FS Rd 371 and further down the creek along FS Rd 187 (through Castle Peak Campground) nearly to its confluence with Rapid Creek.

Issues

Information gained from a 2014 focus group of Black Hills stream anglers, public open house events, SDGFP staff, and the 2015 Black Hills Angler Survey (Longmire *in prep.*) was used to identify management issues. Not surprisingly, many of the issues identified for the Rapid Creek watershed were identified for Black Hills streams or the BHFMA in general and are also included in those plans, while other issues were specific to the Rapid Creek watershed.

1. Conflicting angler preferences require multiple management strategies.

Fisheries Management Plan for Black Hills Streams, 2015-2019

Rapid Creek Watershed

- *Issue is similar to Streams Plan Issue 2 and BHFMA Plan Issue 3*
- 2. Angler compliance with existing regulations in the BHFMA is unknown.
 - *Issue is similar to Streams Plan Issue 4 and BHFMA Plan Issue 7*
- 3. Stream flows are impacted by human activities, including urban development.
 - *Issue is similar to Streams Plan Issue 8 and BHFMA Plan Issue 13*
- 4. Management to produce maximum angler satisfaction may require complex and/or water-specific regulations.
 - *Issue is similar to Streams Plan Issue 9 BHFMA Plan Issue 14*
- 5. Native fish populations might be negatively impacted by habitat loss and fish introductions.
 - *Issue is similar to Streams Plan Issues 7 and BHFMA Plan Issues 11 & 12*
- 6. Long-term planning is required to implement habitat and access projects on federal lands.
 - *Issue is similar to Streams Plan Issue 17 and BHFMA Plan Issue 24*
- 7. Population genetics information, including genetic health and source strains, is unknown for nearly all naturally-reproducing trout populations.
 - *Issue is similar to Streams Plan Issue 18 and BHFMA Plan Issue 26*
- 8. Factors affecting trout reproduction and recruitment are unknown for many streams.
 - *Issue is similar to Streams Plan Issue 20 and BHFMA Plan Issue 28*
- 9. Streams sometimes don't meet their designated fish classification.
 - *Issue is similar to Streams Plan Issue 29*
- 10. No objective measure of success exists for trophy or memorable trout management in BHFMA streams.
 - *Issue is similar to Streams Plan Issue 33*
- 11. Mid-sized brown trout are lacking below Pactola Reservoir.
- 12. High water releases from Pactola Reservoir may have removed critical habitat for large trout.
- 13. The locations of critical spawning areas are unknown in Rapid Creek and Castle Creek.
- 14. Trout mortality in Rapid Creek caused by terrestrial predators is largely unquantified.
- 15. Regulations on Rapid Creek within the city limits of Rapid City may not be meeting angler expectations.
- 16. Iron deposits may be negatively affecting stream productivity in certain sections of Rapid Creek and Castle Creek.

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Rapid Creek Watershed

17. Spatial and temporal variation in didymo prevalence may be negatively impacting fisheries.
18. Lack of control over water releases from Pactola and Deerfield Dams can make management of downstream fisheries difficult.
19. Brown trout densities and sizes immediately above Pactola Reservoir and in the Silver City walk-in area do not meet some angler's expectations.

Goal, Objectives, Strategies

Goal: Manage the Rapid Creek watershed for long-term sustainable use and enjoyment.

The following objectives and strategies address many of the Issues identified for the Rapid Creek watershed. Completing these objectives and strategies will be the focus of SDGFP fisheries staff over the next five years.

Objective 1: Annually submit at least one major habitat project proposal for Rapid or Castle Creek for funding.

Strategy 1.1: Initiate stream habitat mapping.

Strategy 1.2: Identify stream reaches where habitat projects could potentially improve fish sizes and numbers.

Strategy 1.3: Prioritize potential projects based on habitat and fish population surveys, access availability, and public input.

Strategy 1.4: Collaborate with the USFS on permitting and possible funding.

Strategy 1.5: Involve NGOs and PAIs.

Strategy 1.6: Develop project proposals to include post-completion assessments, including cost-benefit analysis.

Strategy 1.7: Submit project for funding as part of the GFP capital development budget.

Objective 2: By December 2017, investigate brown trout population changes over time in Rapid Creek above Pactola Reservoir.

Strategy 2.1: Complete review of peer-reviewed and gray literature.

Strategy 2.2: Conduct fish population surveys.

Strategy 2.3: Identify potential factors affecting brown trout populations.

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Rapid Creek Watershed

Strategy 2.4: Change stream classification if warranted.

Strategy 2.5: Publish findings in Statewide Fisheries reports and other publications if deemed appropriate.

Strategy 2.6: Disseminate research information to the public using old media, new media, open houses, and presentations to angler groups.

Objective 3: By December 2017, identify critical brown trout spawning areas.

Strategy 3.1: Conduct a literature review on redd survey techniques and methods to determine redd success.

Strategy 3.2: Conduct redd surveys.

Strategy 3.3: Create a map containing redd locations, including reproductive success.

Strategy 3.4: Include findings in Statewide Fisheries Reports.

Strategy 3.5: Disseminate research information to the public using old media, new media, open houses, and presentations to angler groups.

Strategy 3.6: Use spawning location information when making decisions on potential in-stream habitat work or when working towards Best Management Practices in surrounding riparian areas.

Objective 4: By December 2017, evaluate the effects of Rapid Creek special regulations.

Strategy 4.1: Review literature.

Strategy 4.2: Consult university researchers and other staff.

Strategy 4.3: Evaluate the need for a controlled experiment to assess the effectiveness of special regulations.

Strategy 4.4: Conduct fish population surveys in areas under special management and areas under standard harvest regulations.

Strategy 4.5: Statistically analyze data.

Strategy 4.6: Publish findings in Statewide Fisheries reports and other publications if deemed appropriate.

Strategy 4.7: Disseminate research information to the public using old media, new media, open houses, and presentations to angler groups, and solicit feedback for possible regulatory changes.

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Rapid Creek Watershed

Strategy 4.8: Based on research results and public input, recommend changes in regulations if necessary.

Objective 5: By December 2018, identify and begin implementing potential management options in areas where iron deposits may limit fish populations.

Strategy 5.1: Review literature to ascertain the effects of iron on stream fisheries, potential remediation actions, and sampling methods for iron in flowing water.

Strategy 5.2: Identify stream reaches suspected of containing high levels of iron.

Strategy 5.3: Determine sampling locations, times, and frequencies.

Strategy 5.4: Determine where water samples will be analyzed and expected costs.

Strategy 5.5: Analyze samples and identify reaches where iron exceeds 4.0 mg/L.

Strategy 5.6: Conduct fish population surveys at identified reaches.

Strategy 5.7: Statistically analyze data.

Strategy 5.8: Publish findings in Statewide Fisheries reports and other publications if deemed appropriate.

Strategy 5.9: Disseminate research information to the public using old media, new media, open houses, and presentations to angler groups, and solicit feedback for possible management changes.

Strategy 5.10: Based on research results and public input, recommend changes in management if necessary.

Objective 6: By December 2019, undertake and evaluate a habitat improvement project in the catch and release area of Rapid Creek below Pactola Dam from the USGS gauging station downstream to Tamarack Gulch (approximately 2,500 feet of stream).

Strategy 6.1: Conduct pre-habitat project fish population surveys.

Strategy 6.2: Complete habitat improvement project.

Strategy 6.3: Conduct post-habitat project fish population surveys.

Strategy 6.4: Determine if changes in fish populations occurred.

Strategy 6.5: Conduct a cost-benefit analysis.

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Strategy 6.6: Publish findings in Statewide Fisheries reports and other publications if deemed appropriate.

Strategy 6.7: Disseminate information to the public using old media, new media, open houses, and presentations to angler groups, and solicit feedback for possible future projects.

Objective 7: By December 2015 initiate rehabilitation of in-stream habitat structures altered during high-water events in Rapid Creek in Rapid City

Strategy 7.1: Create a map showing the locations of all structures.

Strategy 7.2: Determine the integrity of structures and estimate their effectiveness.

Strategy 7.3: Create a prioritized list of structures in need of reconditioning.

Strategy 7.4: Investigate possible funding sources.

Strategy 7.5: Rehabilitate high priority structures by December 2019.

Objective 8: By December 2016, begin evaluating terrestrial predator effects on Rapid Creek trout populations and determine if predator management is necessary.

Strategy 8.1: Conduct a literature review.

Strategy 8.2: Working with university researchers, design an appropriate experiment to quantify survival rates of resident trout in reaches of Rapid Creek with, and without, predator block management.

Strategy 8.3: Collect data as per the experimental design.

Strategy 8.4: Statistically analyze data.

Strategy 8.5: Publish findings in Statewide Fisheries reports and other publications if deemed appropriate.

Strategy 8.6: Disseminate information to the public and solicit feedback for possible future actions by December 2019.

Objective 9: By December 2019, determine the extent of didymo annual coverage and possible effects on fish populations in Rapid and Castle Creeks.

Strategy 9.1: Visually estimate and document didymo coverage throughout the growing season.

Strategy 9.2: Conduct yearly fish population surveys within and outside of affected areas.

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Strategy 9.3: Use GIS to prepare a map with overlays of didymo coverage and fish populations.

Strategy 9.4: Publish findings in Statewide Fisheries reports and other publications if deemed appropriate.

Strategy 9.5: Disseminate information to the public using old media, new media, open houses, and presentations to angler groups, and solicit feedback for possible future actions.

Strategy 9.6: Utilize the “Risk Potential for of the Aquatic Invasive Species *Didymosphenia geminata* to Bloom in Selected Streams of the Black Hills, South Dakota” (James 2013) for possible implementation of mitigation efforts.

Objective 10: By December 2019, identify and acquire flows needed for naturalized trout populations in Rapid Creek below Pactola Reservoir.

Strategy 10.1: Work with Bureau of Reclamation and other necessary entities to secure minimum flows (> 40 cfs) during critical periods (i.e. October-March).

Strategy 10.2: Pursue water rights.

Objective 11: By December 2019, reduce sedimentation and increase bank stabilization in degraded areas of Rapid and Castle Creeks.

Strategy 11.1: Identify areas where sedimentation is of concern and bank stabilization is desired.

Strategy 11.2: Work with private landowners, NGOs, and other government entities.

Strategy 11.3: Develop proposals for bank stabilization projects.

Strategy 11.4: Investigate possible funding sources, submit proposals for funding, and complete projects as funding becomes available.

Objective 12: By December 2015, implement an evaluation of areas in Rapid Creek where supplemental rainbow trout stocking occurs on naturalized brown trout populations.

Strategy 12.1: Identify areas in Rapid Creek where supplemental stocking occurs

Strategy 12.2: Compare naturalized brown trout population characteristics with areas within a close proximity where rainbow trout stockings do not occur.

Strategy 12.3: Consider discontinuation of stocking for a period of time (e.g. 2 years), if warranted and evaluate changes in the naturalized brown trout population.

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Strategy 12.4: Adjust management strategy based on findings, if warranted, by December 2018.

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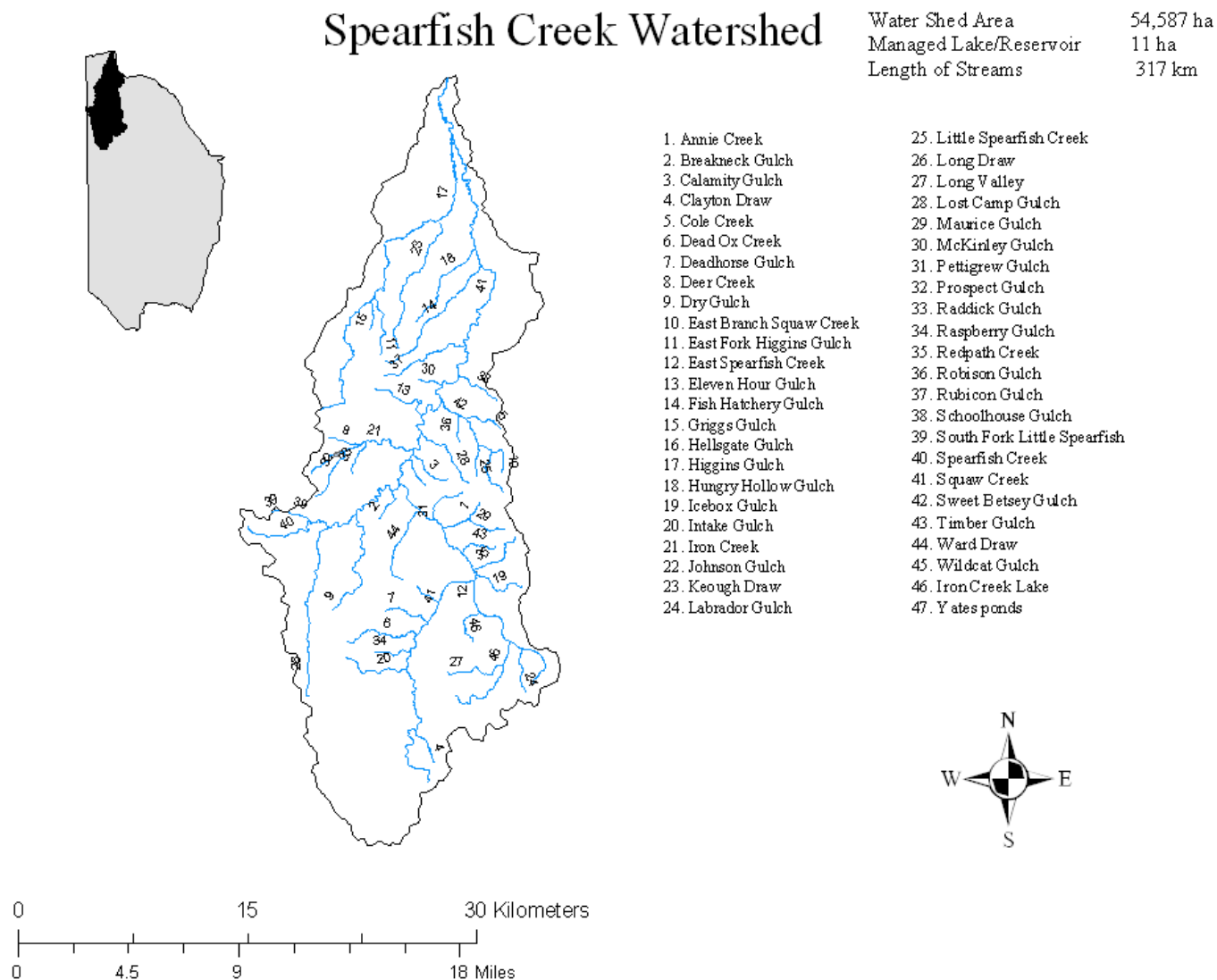
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Spearfish Creek Watershed

Description

The Spearfish Creek watershed lies in the northwest corner of the BHFMA and covers approximately 133,999 acres. The Spearfish Creek Watershed is third largest amongst all the subunits within the BHFMA. The headwaters primarily consist of forested areas. Much of the land uses are for the production of forest products, however, grazing and mining occurs within the watershed. Homes reside along much of the primary watercourses and the town of Spearfish has its namesake stream flowing through it.

Recently, Spearfish Creek has undergone two specific changes to its hydrologic management. In November of 2003, Homestake Mine ceased using water in Little Spearfish Creek allowing water to flow over Spearfish Falls for the first time in decades and enter Spearfish Creek. In conjunction with the release of water from Little Spearfish Creek, Homestake Mines also stopped taking water from Spearfish Creek at Savoy Intake allowing this water to continue downstream. These actions resulted in increased discharge in Spearfish Creek below Savoy intake and Little Spearfish Creek.

In addition to the hydrologic changes, natural discharge has likely affected the fishery in Spearfish Creek. According to USGS flow data (available at <http://waterdata.usgs.gov/sd/nwis>), mean discharge for May in Spearfish Creek is 103 cfs, but between 2008 and 2012 the May average discharge has exceeded 130 cfs. Spearfish Creek has also experienced individual high flow events due to precipitation and snow melt. These events resulted in discharges as high as 664 cfs in 2008, 244 cfs in 2009, 234 cfs in 2010 and 543 cfs in 2011. These hydrologic events resulted in mobilization of large amounts of bed material causing changes to the morphology of the stream and redistributing habitat throughout the system. The deposition of rock and sediment from previous high flow years and runoff from Storm Atlas in 2013 eventually filled Maurice Intake. As a result of this, the City of Spearfish received FEMA funding to remove the deposition from the impounded area. These hydrologic events are often normal and necessary for the maintenance of habitat features within the stream (Poff et al. 1997; Norris and Thoms 1999) and riparian features which can have direct effects on fish habitat (Schlosser 1991; Kauffman et al. 1997).

The effects of changed hydrology and high discharge events on the Spearfish Creek fishery were unknown and beginning in 2007, SDGFP began receiving mixed reports about the fishing in Spearfish Creek. Some anglers contended that the fish population was low since they were not catching many fish. However, other anglers claimed the fishing was good and reported high catch rates. The reports of poor fishing were cause for concern. Spearfish Creek had been sampled nearly every year for the past 20 years, but the number of sites was relatively small. Therefore, SDGFP intensively sampled Spearfish Creek to determine the status of the fishery and to evaluate management strategies currently in place. During the intensive survey in August and September 2008, brown trout populations were determined to exceed a Class I brown trout fishery (i.e. >150 fish \geq 200 mm/surface acre; Erickson et al. 1993) in all but the headwaters of Spearfish Creek with stream segment averages as high as 68 fish >200 mm per 100 meter (m) of stream. Following 2008, SDGFP continued to receive mixed reports about the fishing in Spearfish Creek, so the creek was sampled intensively again in 2011. During the 2011 survey, brown trout populations were again exceeding a Class 1 brown trout fishery in all areas except

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the headwater section which averaged 100 adult brown trout per acre and 383 adult brook trout per acre.

Stream Fisheries Management

The majority of Spearfish Creek and its tributaries are managed as a wild trout (natural yield) fishery with standard regulations of a daily limit of five trout (in any combination) with one allowed 14 inches or longer. A one-mile reach of Spearfish Creek from the Maurice Intake upstream to the Hydro #2 building is managed with catch and release regulations for rainbow trout. Other trout species may be harvested according to standard regulations. This reach of Spearfish Creek is unique in that it contains the only known naturally reproducing rainbow trout population in the BHFMA capable of maintaining a class I rainbow trout (i.e. >25 fish \geq 200 mm/surface acre; Erickson et al. 1993) fishery. Few fish stockings have occurred within the watershed since 1990. Savoy Weir in Spearfish Creek was stocked in 2005 and 2006 after completion of a renovation project. Iron Creek was last stocked with brook trout in 1997, and East Spearfish Creek was last stocked with brown trout in 2005.

Stream Habitat

Spearfish Creek through the canyon is unique in relation to other streams in the Black Hills. It is not dammed and natural spring flows provide adequate cold water year round supporting a wild trout fishery of brook, brown and rainbow trout. Past projects within the watershed include the dredging of Hanna Pond on East Spearfish Creek to improve the fishery and prevent downstream movement of sediments. Instream habitat work was completed between Maurice Intake and Hydro #2 to repair fish habitat damaged during a 1995 flood event. Instream habitat work occurred in Spearfish Creek in 1985 and 1999 in the city park. Savoy intake was renovated in 2007. This project provided an upstream pond for fishing, fish passage over the rock arch rapids, a parking lot and visitor trail. Yates pond was renovated in 2008 and Little Spearfish weir was redesigned to create access and improve the fishery. Maurice intake was dredged in 2014 to remove sediment from past storm events.

Residential development along streams coupled with large unregulated storm events can alter habitat and stream hydrology within the canyon and through the City of Spearfish. Maintenance of past projects and watershed improvement projects are important to maintaining the quality of fishery.

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Table 1. Stream habitat projects within the Spearfish Creek Watershed, South Dakota. NA-Not available.

Location	Year	Miles	Cost
Spearfish Creek, instream habitat, Painter	1996	0.25	NA
Spearfish Creek, Lookout and City Park	1997	0.5	\$18,859
Spearfish Creek, Hydro #2 to Maurice	1999	0.5	\$121,000
Spearfish Geochemistry study, SDSMT	2002	NA	NA
Savoy US14A structure, culvert, water right	2003	0.5	\$35,000
Savoy intake rehab/rapids reconstruction	2007	5.0	\$425,000

Stream Access

Fishing access to creeks within the Spearfish Creek Watershed is plentiful due to a large portion of the watershed lying within public ownership. In addition, state laws also allow for access as long as users have legally entered a navigable stream (i.e. through public right of way or landowner permission) and remain in the watered area. Spearfish Creek is the second largest creek in the BHFMA and stream side access to the upper reaches is fairly easy and common where the creek parallels US Highway 85 and US Highway 14A. Lower Spearfish Creek also has excellent access as it flows through the city of Spearfish with ample parking opportunities throughout the city.

Issues

Information gained from a 2014 focus group of Black Hills stream anglers, public open house events, SDGFP staff, and the 2015 Black Hills Angler Survey (Longmire 2015) was used to identify management issues. Not surprisingly, many of the issues identified for the Spearfish Creek watershed were identified for Black Hills streams or the BHFMA in general and are also included in those plans, while other issues were specific to the Spearfish Creek watershed.

1. Conflicting angler preferences require multiple management strategies.
 - *Issue is similar to Streams Plan Issue 2 and BHFMA Plan Issue 3*
2. Angler compliance with existing regulations in the BHFMA is unknown.
 - *Issue is similar to Streams Plan Issue 4 and BHFMA Plan Issue 7*
3. Native fish populations might be negatively affected through habitat loss and fish introductions.
 - *Issue is similar to Streams Plan Issue 7 and BHFMA Plan Issues 11 & 12*
4. Factors affecting trout reproduction and recruitment are unknown for many streams.
 - *Issue is similar to Streams Plan Issue 20 and BHFMA Plan Issue 28*

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5. The distribution and density of wild rainbow trout is unknown and may not be encompassed by the special regulation area.
6. Density may be affecting trout growth.
7. The habitat needed by large trout may be lacking.
8. Information on trout movement within the watershed is lacking.
9. Changes in stream hydrology has changed in-stream habitat and may have influenced fish populations.
10. Trout spawning areas and recruitment within the Yates Ponds are unknown.

Goal, Objectives, Strategies

Goal: Manage Spearfish Creek for the long-term sustainable use and enjoyment

The following Objectives and Strategies address many of the Issues identified for Spearfish Creek. Completing these Objectives and Strategies will be the focus of SDGFP fisheries staff over the next five years.

Objective 1: Annually submit at least one major habitat project proposal for funding.

Strategy 1.1: Initiate stream habitat mapping.

Strategy 1.2: Identify stream reaches where habitat projects could potentially improve fish sizes and numbers.

Strategy 1.3: Prioritize potential projects based on habitat and fish population surveys, access availability, and public input.

Strategy 1.4: Collaborate with the USFS on permitting and possible funding.

Strategy 1.5: Involve NGOs and PAIs.

Strategy 1.6: Develop project proposals to include post-completion assessments, including cost-benefit analysis.

Strategy 1.7: Submit project for funding as part of the GFP capital development budget.

Objective 2: By December 2018, document naturally-reproducing rainbow trout distribution and densities in Spearfish Creek.

Strategy 2.1: Conduct fish population surveys in established sites.

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Strategy 2.2: Conduct fish population surveys in new reaches, including tributaries.

Strategy 2.3: Create a map showing distribution and population densities.

Strategy 2.4: Define the timing and location of future sampling efforts.

Strategy 2.5: Publish findings in Statewide Fisheries reports and other publications if deemed appropriate.

Strategy 2.6: Disseminate information to the public using old media, new media, open houses, and presentations to angler groups, and solicit feedback for possible future actions.

Strategy 2.7: Based on research results and public input, recommend changes in regulations.

Objective 3: By December 2019, evaluate the relationship between population density and fish growth in Spearfish Creek.

Strategy 3.1: Conduct library research and write literature review.

Strategy 3.2: Involve university researchers and other staff.

Strategy 3.3: Create dataset from previous fish population surveys.

Strategy 3.4: Collect additional data as needed.

Strategy 3.5: Statistically analyze data.

Strategy 3.6: Publish findings in Statewide Fisheries reports and other publications if deemed appropriate.

Strategy 3.7: Disseminate information to the public using old media, new media, open houses, and presentations to angler groups, and solicit feedback for possible future actions.

Strategy 3.8: Based on research results and public input, recommend changes in regulations.

Objective 4: By December 2019, conduct additional research on trout movement in Spearfish Creek and its tributaries.

Strategy 4.1: Review existing data to identify research needs.

Strategy 4.2: Conduct library research and write literature review.

Strategy 4.3: Involve university researchers and other staff.

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Strategy 4.4: Prepare study proposal and research objectives.

Strategy 4.5: Collect data.

Strategy 4.6: Statistically analyze data.

Strategy 4.7: Publish findings in Statewide Fisheries reports and other publications if deemed appropriate.

Strategy 4.8: Disseminate information to the public using old media, new media, open houses, and presentations to angler groups, and solicit feedback for possible future actions.

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